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CASES TREATED WITH PHYSOSTIGMIÆ.

BY J. NETTELTON, M.R.C.V.S., NORTHALLERTON.

THE alkaloid of the Calabar bean—physostigmiæ—was introduced into veterinary practice by Professor Dieckerhoff some time ago, and lately an useful hypodermic injection has been offered to the profession by Messrs. Hewlett and Son, London.

Having treated several cases with this preparation, and taken notes of some, they may perhaps interest a few readers of the VETERINARY JOURNAL.

Case No. 1.—A black, aged farm gelding which I attended, I found suffering from impaction of the bowels. On my arrival, some nine miles out, I was told the animal had been suffering from colicy pains for twenty-four hours previously: ʒvi. of Aloes, two pints of Ol. lini., and ʒvi. of Ether nit., had been given at intervals, but to no effect.

Having had no experience of physostigmiæ, and knowing the quantity of medicine already given, I naturally felt timid about injecting a full dose, so used only ʒi., and waited to see the result. For the first twenty minutes I found no change, but afterwards the animal became more restless, continually getting up and down (which had not been the case previously, only at intervals); movement of gases were heard in the bowels, slight perspirations set in, the pulse rose from fifty to fifty-eight; this condition lasted about an hour, when the animal settled down to its former state, apparently neither better nor worse for my

treatment. After waiting another hour I gave a draught composed of the extract of Belladonna, nux vomica, and water, and left three more to be given at intervals. On my visiting the animal next day I found it quite easy; the bowels had acted three times, but no purgation set up. This case was by no means a satisfactory test as to the utility of the physostigmiæ.

Case No. 2.—A five-year-old mare, six miles out in the country, which, on my arrival at 9 p.m., I found had been taken ill that day at noon; an ordinary colic mixture had been given her, but she became rapidly worse, the abdomen was considerably distended with gases, cold perspirations bedewed the body, extremities cold, membranes highly injected, the animal pulseless and life fast ebbing out. I told the owner her condition, and advised him to have her put out of misery; this he would not consent to, but wished me to give her something, so I injected ʒii. of physostigmiæ and left. The owner told me afterwards that the bowels had been relieved, and the abdomen had settled down to its normal state about an hour after I gave the fluid, but pain continued until she died about three hours after my leaving her. This case I consider far more satisfactory than the previous one, so far as testing the drug is concerned; although useless as a remedy for inflammation of the bowels I still had hopes of its being beneficial in cases of impaction.

Case No. 3.—A brown hunting mare, nine years old, my own property, suffering from impaction of the stomach, caused by carelessness in feeding on the part of my groom. On my finding her with all the symptoms of the above affection, I administered Ether nit. ʒii., Tr. aconite ʒi., Ol. lini. Oi., Aloes ʒv. Four hours afterwards, there being no improvement, gave a draught composed of Ether nit., extract belladonna, and water; repeated this draught three or four times at intervals, also gave more Ol. lini. Eighteen hours from the commencement, no improvement, the abdomen distended with gases, pain very great, and to all appearance the mare was fast sinking. I now injected ʒiii. of physostigmiæ, and was obliged to leave her for three hours. On my return I was told that the animal had suffered greater pain for the first hour, and had passed fæces three times during my absence. She was now suffering very

little, and improved from this time, although there was no purgation set up.

Case No. 4.—A bay harness-mare, five years old, suffering from spasmodic colic, with bowels inactive. I administered at the onset ʒii. of physostigmiæ, and waited to see the result. In fifteen minutes the mare became more restless, breathing increased, profuse perspirations over the whole body, movement of gases were heard in thirty-three minutes, fæces in small quantities were passed; in forty-five minutes much pain, more fæces passed; in sixty-four minutes more fæces passed, pain less, perspiration ceasing. The mare from this time improved rapidly, without further treatment.

Case No. 5.—A bay cart-gelding, the property of a corn merchant in Northallerton. I found the animal suffering from Flatulent Colic, with bowels inactive, caused by being fed on Indian meal. I gave Aloes ʒv., Ol. lini. Oi., Ol. terebinth ʒii., Ether nit. ʒii., Tr. aconite ʒi. I saw the horse two hours afterwards; former symptoms aggravated; gave draught as before, aloes and oil excepted; three hours afterwards abdomen enormously distended, pain greater than ever, no action of the bowels. I now injected physostigmiæ ʒiii. I had, however, no opportunity of learning the after symptoms, until three hours afterwards, when I was pleased to find the animal free from pain, semi-fluid fæces had been passed three times; ten hours afterwards bowels costive; in five hours more purgation set in, which lasted twelve hours. In this case I am convinced purging in the first instance was due to the action of the physostigmiæ, and latterly to the aloes and oil previously given. Most of those cases I treated with injections per rectum, but the last case is an exception.

I have treated several cases similar to the above with satisfactory results, but have not taken notes of them. However, I think those given will suffice to give to physostigmiæ a place as a valuable remedy in veterinary practice.

PEDAL FISTULÆ.

BY W. BRYDON, V.S., BOSTON, MASS., U.S.A.

THE VETERINARY JOURNAL for September contains the report of an interesting paper on "Quittor," read by Professor Walley at the quarterly meeting of the Liverpool Veterinary Medical Association, and afterwards ably discussed by the members of that body present.

Having had some experience in the treatment of this perplexing disease, perhaps I may be pardoned for making a few remarks on the subject.

In all cases of true Quittor that I have met with, the hoof binds the foot, especially at the heel, where the wall and bar at first interfere with the circulation, causing congestion of the soft structures and discoloration of the subjacent sole; finally, they crowd and injure the cartilage, and perhaps the wing of the coffin-bone—the quarter becoming diseased to such an extent that repair, in some of the structures involved, takes place slowly and by a kind of natural reproduction.

My observation has not shown me that bruises by the shoe, pricks, or treads are necessary factors in the production of this disease, although such accidents, or even aggravated diseases of the feet or of the limbs—such as scratches—may hasten its development, or otherwise modify and change its character.

In the treatment of this disease, I at first resorted to the heroic remedies generally recommended, but for the last ten years have practised a much less painful and more satisfactory method.

On examining a case, and becoming satisfied as to its character, my first inquiry is, when did the quarter first begin to swell and discharge? A satisfactory answer being received, I then inform the owner that, at the furthest, "the sinuses can be permanently closed in from five (5) to eight (8) months from the date of their first appearance." Although in some cases the hoof may not by this time be fully grown down, yet, with a little attention being given to it, the animal will then be able to perform slow work daily—the length of time required for treatment, and the degree of soundness afterwards, depending on whether the foot

was previously affected with or predisposed to navicular or other disease of a serious nature.

Treatment.

Remove the shoe and poultice the whole foot thoroughly with linseed meal and water, to which a little carbolic acid and glycerine have been added; level and trim away from the part all the horn possible, with the rasp and knife, but without drawing blood; especially cut well into the commissures. At the same time, weaken the whole hoof, which, in such cases, always interferes mechanically with the circulation and retards repair. Repeat occasionally the poultice, which may now be made of bran or small pieces of sponge, instead of the linseed, which I have an impression is sometimes injurious to the wall when frequently used. If seasonable, turn into a soft pasture as soon as the soreness subsides, using some easily applied paste dressing that will last well, and protect from flies, etc.; repeat the trimming of the hoof at least once a month. When the animal has to be confined in the stable, keep the hoof soft and clean; place it occasionally in an inch or two of boiling water for about three minutes, to stimulate the torpid vessels of the sole, and when the soreness subsides a light shoe can be applied and some slow work be performed.

Although some of my conclusions on the history of the disease may not be generally accepted, yet the fact remains that I have had only one case that did not recover, and that was a street-railroad horse last spring, which was sent by mistake an eight-mile trip, mostly on pavement, causing such extensive inflammation of the foot that the hoof sloughed off and the animal had to be destroyed.

If, as I believe, the disease "runs itself out"—if I may use such an expression—in time, it perhaps explains the wonderful cures of empirics after all others have failed, as well as some, if not all, of the success attending excision of the cartilage and other painful remedies, when performed or applied about the fifth or sixth month. For my experience is that the sinuses cannot be prevented from closing, even by a good deal of unnecessary interference.

The operation—excision of the cartilage—which I think was very popular at the London College at one time, and is still so in France and in New York, appears to me much more rational and surgical than the repeated tortures often used. The history of most cases I have read about, however, have not given the age of the "Quittor" at the time of the operation with exactness, if at all, to fully convince me of the certainty of its success.

The great objection to the treatment I have indicated, is that it is tedious; yet it need not be expensive, and cannot well be more humane, until, by our knowledge of the proper management of the hoof under the varying circumstances to which it is exposed, we become able to modify and guide this living structure, from its birth to its maturity and after, so that all predisposition to such diseases will be avoided; for I am strongly inclined to believe that there are feet in which it would be impossible for what we recognise as a true "Quittor" to form.

OBSERVATIONS ON SOUNDNESS.

BY R. H. DYER, M.R.C.V.S., LIMERICK.

(*Continued from page* 320, *vol. xix.*)

FISTULOUS parotid ducts may be a sequel to Strangles; so may Glanders, Bronchitis, roaring, thick-wind, etc. The parotid duct is seldom diseased—at least, I have seen but few cases. When met with, however, it generally gives the practitioner much trouble. It is not probable a veterinary surgeon would overlook such an affection, except in the hurry of a fair, and the seller ranks with the knowing-ones. The first case met with by me was during my pupilage. Being dresser at the time, it afforded me an opportunity of collecting the saliva as it flowed from the duct during the process of mastication, and of ascertaining the quantity secreted by the gland. If my memory serves me, this case left the College cured. The cases seen subsequently were under my charge, and after considerable trouble and time yielded to treatment and did well. A horse with fistulous parotid duct is of necessity unsound. I have heard of carious teeth being mistaken for Glanders. I don't see exactly

how a carious tooth could be mistaken for this formidable disease, so as to warrant a veterinary surgeon condemning a horse to the hands of the slaughterer ; nevertheless, I have read such a statement, although unable at the moment to point to the record thereof. There are symptoms which are analogous to those of Glanders, such as a discharge from one or both nostrils, which, being offensive to the smell, may possibly lead an examiner to infer that the case was of long standing, and that either the cartilages or the bones themselves were implicated. I should imagine, if this were the case, other symptoms would be present which would corroborate or strengthen the opinion so formed. This has been my experience, and I have never met with much difficulty in the matter.

There is another affection which, doubtless, has often caused the life of many horses to be sacrificed: namely, abrasions of the Schneiderian membrane. This is occasionally met with in severe cases of Catarrh and in Strangles. In such affections it will be well to look carefully for other and unmistakeable symptoms before recommending the destruction of a patient. In the other case, that of a carious tooth, there is occasionally much difficulty in forming a correct diagnosis, from the position the animal assumes, and from the fact of his being awkward and shy when the head is handled. A ready means of examining a suspicious case is gained by throwing him down.

I have not met with young horses suffering from carious teeth; indeed, it is a complaint not frequently heard of in this country. An animal labouring under this affection would, for the time being, be considered as unsound.

Bronchitis sometimes remains as a sequel of Strangles, and which, if not removed, would cause the animal to have some difficulty in passing veterinary surgeons as to soundness, and it would most probably become chronic ; which necessarily deteri orates the value. The diseases of the respiratory organs will come in for a share of consideration in their proper course.

Having alluded to some of the diseases which must usually fall under the notice of veterinary examiners, I must proceed to carry out the observations first intended by me. Some of the affections passed in review seem to call forth remarks that were

not premeditated, and this caused a deviation from my proposed plan. Our next step will be the examination of the eyes. I must confess I approach this subject with diffidence, feeling how important it is, and how little understood by the public generally. When we take into consideration the structure of the visual organ, and the little we know of its functions, together with the fact how few of us have made the science of optics a study, and also the cursory manner the eyes of horses are examined, as well as the many difficulties presented to us when the animals are undergoing such scrutiny, I repeat, I feel diffident in introducing the subject to the readers of this Journal.

There are several modes employed by persons to examine the eye, but all of them aim at the same object, namely, that of ascertaining whether the eye be a sound one or not. I don't believe I am far out when it is asserted that very few examiners trouble themselves about an eye, provided it is free from actual blemish. And, if neither opacity of the transparent cornea nor of the lens is present, and the eye is pretty clear, as a general rule, the horse passes sound as regards the eyes. In order to make myself understood, it will be necessary to consider, in the first place, the structure of some of the parts; afterwards to offer a few observations upon the eye as an optical instrument; otherwise, in all probability, some of the remarks may appear somewhat strange, and perhaps novel. The eye is divided into the globe and its appendages. The globe is composed of tunics and refracting media, called humours. The tunics are three in number, viz., 1st, sclerotic and cornea; 2nd, choroid, iris, and ciliary processes; 3rd, retina and zonula-ciliaris. The humours are also three in number—aqueous, crystalline lens, and the vitreous humour. The sclerotic and the cornea form the external tunic of the eyeball, and give to it its peculiar form; the sclerotic invests four-fifths of the globe, and the cornea the remainder. The first named is a dense, fibrous membrane, thicker posteriorly than anteriorly; it is continuous posteriorly with the sheath of the optic nerve, which is derived from the dura mater; it is pierced by the optic and ciliary nerves and ciliary arteries; anteriorly, it presents a bevelled edge for the reception of the cornea; the anterior surface of the sclerotic is

covered by the tunica albuginea, which is formed by the expansion of the tendons of the four straight muscles; the tunica albuginea is partly covered by the conjunctiva. At the entrance of the optic nerve the sclerotic forms a thin, cribriform lamella, which is pierced by a number of minute openings for the passage of the nervous filaments. One of these openings is larger than the rest, and is situated in the centre of the lamella, which is called *porous opticus;* it gives passage to the *arteria centralis retina.* The cornea is the transparent projecting layer which forms the anterior fifth of the globe. In form it is circular, being *concavo-convex;* it is pierced by its thin, sharp edge within the bevelled border of the sclerotic. It consists of four layers:—first, the conjunctiva; second, the cornea proper, which is constituted by several thin lamellæ, connected together by an extremely fine, cellular tissue; thirdly, the cornea elastica, which is a fine, elastic, and exquisitely transparent membrane, exactly applied to the inner surface of the cornea proper; the last is the lining membrane of the anterior chamber of the eyeball. The choroid is the vascular membrane of a black, soft, and delicate texture, situated immediately under the sclerotic, to which it is connected by a very fine, cellular tissue, and by the passage of nerves and vessels. Internally, it lies in simple contact with the retina; it is pierced posteriorly for the passage of the optic nerve; it is connected anteriorly with the iris, ciliary processes, and with the line of junction of the cornea and sclerotic, by a dense, white line, called the ciliary ligament, which surrounds the circumference of the iris like a ring. The choroid is formed by three layers—an external or venous layer, termed *vena vorticæsa,* which layer is that connected to the ciliary ligament; secondly, the middle or arterial layer, made up principally of the ramifications of minute arteries, which is called the tunica "Ruyschiana." (This membrane was discovered by Ruysh, who was born at the Hague in 1638, whose whole life was spent in making injected preparations. He discovered this layer as before stated, hence the name.—Wilson.) The reflections of this layer, form the ciliary processes. The third and last layer is the *pigmentum nigrum;* it is a delicate membrane situated internally; it presents several colours spread over the choroid, which are

known by the names of pigmentum nigrum and *tapetum lucidum;* this latter is situated above the termination of the optic nerve.

(*To be continued.*)

CHLOROFORM: ITS USES AS AN ANÆSTHETIC IN VETERINARY PRACTICE.*

BY R. ROBERTS, M.R.C.V.S., KENDAL.

My object is not to bring before you a long paper, but to put in as plain, concise, and practical a manner as possible the subject, which is, I think, of great importance to every veterinary surgeon, looking at it from a humanitarian, scientific, and useful point of view. The object of anæsthetics is, as far as possible, to minimise pain and suffering during surgical operations, and to relax muscular contractions when dislocations are to be reduced, and I may add to these, the rendering of operations less dangerous to the veterinary operator. In a paper recently read by Mr. Banham, before the Norfolk and Eastern Counties Veterinary Medical Association, he said: "Most of us admit that the veterinary profession is one of the best in existence from a humanitarian point of view, since no stronger proof of human kindness can be shown than that of relieving dumb animals of their pain and suffering." With this object before us, and the rendering of operations easier and less dangerous to the operator, I have chosen this subject for the basis of my paper, as I have during recent years largely used chloroform in my practice, and can safely say that it is of immense advantage to both operator and patient. I do not propose to enter into the chemical composition, nor the scientific discoveries made by Professor Simpson and others, nor of the prophylactic uses to which chloroform may be put, but simply to speak of it as an anæsthetic and relaxer of voluntary muscular tissue, and to describe it to you as I have used for the purpose of minimising or totally preventing pain during operations. I do not mean to say that its properties are not fully known to every person in this room, but, at the same time, I am aware that it is not used one-thousandth part

* Read at a meeting of the Border Counties Veterinary Medical Society.

of what it might be, and that with the greatest benefit and safety—indeed, it is the exception to the rule to hear any one say that he uses it, it being looked upon as more of a bother than anything else. This, in my opinion, is to be referred to the mode of administration. The old method was, so far as I have seen practised, first to cast the animal, and to secure its legs; afterwards to give the chloroform largely mixed with air. During the excitement there was usually a tremendous amount of struggling before the patient was put under, even more so than when chloroform was not used. The plan that I have followed is, first, to secure the horse's head, having a good halter on each side, securely fastened so that he cannot slip them off. A good strong assistant having hold of each halter is necessary, as, during the period of excitement, the animal may be rather boisterous, and if not securely fastened may get away. I then place the nosebag, containing a sponge, on the horse's nose. This is fastened by a strap which passes over the horse's head, the same as an ordinary muzzle. The nosebag itself has no holes punched in it for the admission of air. When this is done, I pour into the nosebag about two ounces of chloroform and immediately plug up the space around the top of the nosebag and the horse's face, thus preventing as much as possible the admission of air. In Mr. Finlay Dun's work, it is recommended that twenty parts of air to one of chloroform be admitted during inhalation; but I find that this is not necessary. This direction has, I think, caused a great deal of the distaste with which its use is generally viewed by veterinary surgeons. I have put under the influence of chloroform some scores of horses and cattle, and have found it quite safe to exclude the atmosphere as far as I possibly could, and cause them to inhale nearly pure chloroform vapour. In this way it will be found easier, and almost quicker, to cast and put into position an animal for operation, than can possibly be done by hobbles, stocks, twitches, holding up the legs, etc. I think that an animal can be placed under chloroform in nearly, if not quite, as little time as is necessary for these modes of restraint, to say nothing of the saving of pain to the animal, safety to the operator, and the unpleasant sequences of broken backs, thighs, ruptured stomachs, and bloodvessels.

After two or three minutes, the animal shows signs of excitement, pricks his ears, neighs, and stares about him in a lively manner. This is succeeded by staggering of the hind-legs, which quickly also attacks the fore-legs, and presently the animal reels over, and by-and-by becomes comatose. If the first dose (of from one to two ounces, according to the size of the animal) be not sufficient, a little more may be poured into the nosebag; the sponge will suck it up, and give it off gradually in the form of vapour. This may be repeated from time to time, as often as is necessary, according to the length of time the operation is likely to take. I have seen an animal suffering from painful disease of the bowels kept insensible for two hours. It is necessary during administration to keep an eye on the respiration, and to pay attention to the pulse. The state of sensation may be judged by attempting to touch the cornea, and when it becomes insensible to the touch, the animal may be deemed in a fit state for operating on. Should by chance the animal get too much chloroform, artificial respiration may be resorted to, and cold water dashed over the head and body. I think this very unlikely to occur in animals having such capacious lungs and strong hearts as have horses and cattle, fatty degeneration and disease of the bloodvessels being of very infrequent occurrence amongst them.

Anæsthesia may be *partial* or *complete*, according to the desire of the operator, or the necessity of the operation, which may be of a major or minor character. For many minor operations, it is not necessary to put the animal thoroughly under the influence of chloroform, but it may be so anæsthetised as to render a small operation to be performed practicable, without danger to the operator.

I have in this manner fired horses' hocks, docked, etc. The operations for which I have used it are chiefly as follows: Castration, parturition, firing, docking, neurotomy, reduction of dislocations and herniæ, removal of tumours, operations on the eye, and returning the uterus—in fact, I believe it to be practicable in every sense, and under every condition, in which it is applied in human surgery.

Castration.—The chloroform may be administered as before directed; a rope may be fastened to one hind-leg, so that it may

be lifted out of the way of the operator, and whilst the operation is being proceeded with, the animal may lie partly on its side. There is no struggling, consequently no need to secure the legs. By this means, broken backs and thighs may be entirely avoided. The operation can also be performed in much less time than when the animal is struggling, and without the fear of the cord being wrenched from between the clams, and danger of hæmorrhage ensuing. Every colt that I have castrated this year has been done in this way, and I can assure you with no little relief to myself, for after a man has castrated from four to six, he usually begins to feel very fatigued and tired, the whole of the work of fastening and tying the legs falling on him. I very much prefer this to the operation in the standing position, and I have operated upon several "rig" horses in this way.

Parturition.—In difficult cases of parturition the administration of chloroform is an invaluable aid, as it relaxes the muscular contractions, and prevents "pains" which militate adversely against the accoucheur, often allowing mal-presentations to be reduced without any difficulty. The same remarks apply to reversion of the uterus, where the animal uses its powers so strongly against the operator.

Firing.—Firing may be accomplished with the limbs in a straight position, thus allowing the operation to be nicely performed, and, as in other cases where chloroform is used, without that violent struggling which is so dangerous to the well-being of the animal.

Docking.—Docking I consider to be essentially necessary to the safety of man. I should be sorry if I had to use undocked horses myself, and I consider that docking enhances their value. If done in a proper and scientific manner, I do not see the slightest objection to the operation, the pain of which may be entirely nullified by the use of chloroform, and at the same time it gives the operator a chance of performing the operation in such a way that complete recovery and cicatrization may take place in from twenty-four to forty-eight hours. This may be accomplished by laying back a flap of the skin of the under surface, amputating at a joint, taking up the bloodvessels, and

securing the flap by sutures, and applying an antiseptic pad to the stump.

Neurotomy.—I have operated under chloroform with complete success, so far as pain and struggling are concerned. I cannot say that I am in favour of the operation of neurotomy, yet it is an operation in which it may be used with the greatest benefit.

Dislocations.—I have met with a good many cases of dislocation of the hip joint, probably eighteen or twenty, and I find chloroform to be of the greatest service in their reduction—indeed, I believe so great is the antagonistic force of the gluteal and other powerful muscles, that it would be next to impossible to reduce them without its use.

Herniæ.—The reduction of strangulated hernia I have seen accomplished by the internal and topical use of chloroform.

The removal of tumours, operations on the eye, and other surgical operations too numerous to mention, can be performed with the greatest ease, as the animal is put into a state of quiet and repose. Indeed, it is an invaluable agent in the hands of the skilled practitioner.

Now that our profession is awakening from the torpor in which it has indulged for the past thirty or forty years, and it has got a charter, which allows those who have had no education to practise as veterinary surgeons, it behoves every educated or qualified veterinary surgeon to keep this idea before him—to try by all means to advance the welfare of his profession, and to widen the gap between himself and the uneducated. I look upon the judicious use of chloroform as being a great power in his hands for the accomplishment of this purpose, as it can only be safely used by those who have been educated to use it, and the public by-and-by will so much see the importance that they will not allow their animals to be operated upon without its use. Many of my clients now request, when an operation has to be performed, that it be used.

TUBERCULOUS MILK.

BY J. HARRISON, M.R.C.V.S., WESTMORELAND.

IN the November number of the VETERINARY JOURNAL, the article under the above heading by Mr. Macgillivray, of Banff, N.B., criticising Dr. Imlach's propositions pathologically advanced in relation to Bovine Tuberculosis, will, no doubt, have been read with interest, if not with curiosity, by many practitioners, more especially those practising in country districts where that disease is continually cropping up. I have read Dr. Imlach's "Report," as published in the September number of the VETERINARY JOURNAL, and compared with Mr. Macgillivray's production commenting on the fallacies of the paper, a very invidious comparison is glaringly apparent. I should very much doubt whether Dr. Imlach will suffer himself to take any notice of it, but the strictures placed on his thermometrical and experimental researches are certainly of such a character that the veterinary profession ought not to let them pass unchallenged, more especially as he has been (from the Register) a practising veterinary surgeon for some eighteen years, and the whole tenour of his paper is intended to (in his own estimation) stamp himself as an authority, as to the way and manner in which Tuberculosis is conveyed from the bovine species to the *genus homo;* and that, he concludes, is by the inhibition of milk from tuberculous cows. Mr. Macgillivray, in the second paragraph of his article (page 309), states that Dr. Imlach's experiments are *nil*, owing to incomplete data, and in the third paragraph he, in unmistakable language, calls into question his thermometrical observations. Now, in my experience, the vaginal temperature of tuberculous cows previous to dysenteric complications becoming established, is almost invariably, if taken on the *quiet*, on and off about 100° F., but when Dysentery supervenes, either as a concomitant of a tuberculous deposit or a fluky liver, the temperature goes up one or two degrees, and is continually varying till the animal is exhausted and in *mortis extremis*, when the temperature may and does drop to 97°, or even lower. Consequently, as an adjunctive aid in diagnosing tuberculous cattle, without "taking stock" of other pathological conditions, the thermometer is a

completely valueless toy, and will lead the practitioner, *ignis-fatuus* like, into a "bog," if he has no other faculty of observation than the mechanical one of seeing with his eyes the figures indicated on the instrument. This same remark applies with equal force when the instrument is depended on as a settling point in diagnosing diseases associated with pestilential or Typhoid Fever, as in some of those which come under the Contagious Diseases (Animals) Act. Nevertheless, I am quite prepared to admit that the thermometer is a very valuable, convenient, and quick aid in determining stoppages or changes in the treatment of disease, both in man and the lower animals; and so far, on the aggregate, my observations with this instrument accord with those reported by Dr. Imlach in cases of Tuberculosis in cattle. What about the astounding assertion Mr. Macgillivray makes as to the "natural" bovine temperature being "102°"? Unless the "black runts" about Banff are as "wild as hawks," with skins as cold as clay, and a consuming fire in their interior, surely he could never obtain a normal temperature of 102° F. in any given number of animals. It is inconceivable that he was serious when he wrote it. Besides, if this were really the fact, where is Arnold, Maw, Mackey, and a host of other instrument-makers? They surely ought to be severely reprimanded for misleading veterinary surgeons by placing their "bits of arrows" on their thermometers at 98·4° F. as the normal gauge. In Westmoreland, so far as my observations go, the instrument-makers are right, and Mr. Macgillivray is wrong. I shall not further follow Mr. Macgillivray in his arguments, trying to prove the worthlessness of Dr. Imlach's experiments, as, pathologically, physiologically, and practically considered, they do not even touch the fringe of the question, as to whether the "sale of milk from tuberculous cows" ought to be stopped, because of its being a vehicle capable of conveying the bacilli or virus of the disease to human beings, especially children, and that is the purport of Dr. Imlach's researches. I may be pardoned, and not considered by the profession egotistic, if I, as a country practitioner, add a few additional ideas bearing on the question, seeing that Dr. Imlach's researches are left at the conclusion of his report in a negative

form and requiring further investigation. Considering the nature of bacilli, not only in Tuberculosis in cows, but in every other infectious disease affecting cattle, to be an excretory product, the specific virus being thrown out of the system by those means only, it stands to reason that, if the udder—which is essentially a secreting organ — is free from tuberculous nodules, and the animal shows no tenderness when being milked, that however poor and defective the milk may be in cream, fat, and sugar, *it is, for what it is worth,* safe food for either calves or children, and no bad effects need be apprehended, that is, if the calves or children are of strong constitution and free from any hereditary blood-taint. But this is not always the case ; it not unfrequently happens that the udder of a tuberculous cow is more or less charged with nodules, and if these tuberculous nodules soften, and discharge their contents into or on to the surface of the *tubuli lactiferi,* it is certain that the virus will be conveyed into the milk canals which converge in the teat, and thus the fluid becomes dangerous as food for any animal, let alone the human species. And I have, in virtue of my office as Inspector, and in accord with the "Dairies, Cowsheds, and Milk-Shops Order of July, 1879," forbidden the sale of the milk of such an animal as I have described. I have also, in making *post-mortem* examinations of animals (cows) which have died from the disease, found tuberculous nodules in every stage of development, down to the total breaking up of the mass, in their udders ; consequently, I have no hesitation in saying that each individual cow affected with Tuberculosis requires to be examined by a competent veterinary inspector, in order to determine whether her milk is fit, or not fit, for human consumption. Short of this ordeal, no amount of investigation, whether scientific or otherwise, will quiet people's minds as to the purity of the milk which they buy ; and with a precaution such as this, the inspector may expect to have his judgment very frequently severely criticised.

OBSERVATIONS ON A CASE OF PULMONARY APOPLEXY.

BY ARTHUR SHAWCROSS (PUPIL OF MR. J. B. GRESSWELL, M.R.C.V.S.), LOUTH, LINCOLNSHIRE.

THERE are, perhaps, few diseases to which the horse is liable which are at once so alarming, and at the same time so amenable to active treatment, as Acute Congestion of the Lungs, accompanied by severe hæmorrhage from rupture of the pulmonary capillaries. And there are also, perhaps, few diseases upon which sequelæ are so liable to supervene as is Pulmonary Apoplexy in its worst forms, to be followed by Acute Inflammation of the Lungs.

Acute Congestion of the Lungs—as in most instances—was in this case, regarding which it is my intention to make a few remarks, due to the fact that the animal had suddenly been called upon to perform work in excess of its power while in an untrained condition.

I was called in on Thursday evening, December 5th, to a six-year-old half-bred, highly plethoric mare, which had just arrived from a journey of twenty-eight miles. I found her gasping for breath, and standing with outstretched limbs. The pulse, feeble, fluttering, and irregular, varied from 130 to 170 beats per minute, and soon became more rapid; it was at times quite imperceptible. The respirations were much accelerated, being from sixty to seventy per minute. Snychronously with the expiratory acts, a jugular pulsation could be strongly felt on each side of the neck, and was distinctly audible. Blood was issuing from both nostrils, but ceased to flow about half an hour after the mare arrived at her destination. The extremities were very cold, the tongue was darkly coloured, and the dyspnœa became so distressing that death seemed imminent.

Bleeding was clearly indicated, and I accordingly forthwith removed eight pints of blood from the right jugular vein, and then administered Sulphuric ether ʒii. and brandy Oss.

Until 6.30 the symptoms continued to be very severe, and the animal appeared to be in great pain.

The pulse was now quite imperceptible, and the legs and ears were icy cold.

On Mr. Gresswell's arrival at 6.30, three pints more of blood were abstracted, and the stimulants were repeated.

The legs were briskly rubbed, and rugs wrung out from hot water were assiduously applied to the chest.

At 7 o'clock the pulse was distinct and regular, and numbered eighty beats per minute. The jugular pulsation had almost ceased.

At 7.30 the mare seemed much easier; the pulse fell to sixty-five, and the respirations, though still accelerated, were diminished, and not nearly so laborious.

At 8 the pulse was fifty-five, and the breathing was still easier.

The stimulant remedies were ordered to be repeated, and the hot cloths to be renewed every two hours throughout the night. Every time the rugs were removed the sides were briskly rubbed with mild stimulating liniment.

On Friday morning early, the pulse was forty, and the mare seemed easy and was eating her mash eagerly. In the evening, between 7 and 8 o'clock, the mare had a distinct rigor, appeared to be dull and dejected, refusing all food. The pulse again rose to 60; the respirations were again accelerated, and the animal, though warmly clad, trembled all over. The temperature, as yet not much elevated, rose to 104° F.; and there was dry cough at intervals. Pneumonia seemed impending.

Febrifuges were now administered, and hot cloths were again applied throughout the night. On Saturday the pulse again fell to 48, and the temperature to 101·5°; and on Sunday morning the mare seemed to be much better. On the following day the temperature and pulse were normal.

In Mr. Gresswell's opinion, the mare had very narrowly escaped an attack of Pneumonia.

Of the characteristic features which this case presented, the intense jugular pulsation, synchronous with the expiratory efforts, was not the least remarkable. And the rapid manner in which this reflux venous pulsation ceased after the repetition of the bleeding, was especially noteworthy.

"BURSATTI": RECORD OF CASES DURING 1883.

BY RICHARD WM. BURKE, M.R.C.V.S., A.V.D., INDIA.

(Continued from page 326, vol. xix.)

Such authorities as have attempted to define what the abnormal stimulus which produces this Cancer change in the cells of the skin consists in, find themselves unable to draw a hard-and-fast line as to what certain degree of irritation must be applied to produce it. All that we can be legally certain of, with the present amount of absolute knowledge regarding the disease, is that it must be somewhat below that irritation which gives rise to true inflammation, and that it must be continued and peculiar. These are the three qualities which may be said to characterise the irritation of Cancer.

Dr. Carpenter, who is so ardent a believer in this view of the question, attempted to produce the peculiar irritation by artificial means, for the purpose of testing the validity of the theory, and he all but succeeded in two instances. Dr. Mosely has described a peculiar form of Cancer which occurs in the West Indies, and has demonstrated in the most particular manner that this irritation may be produced by the sting of a fly common to those islands. Mr. J. Burke has certainly shown that the most perfectly developed *kunkurs* have been produced in the human epidermis covering the scalp by the sting of mosquitoes, and has clearly described their formation, and proved that they are in no way dissimilar to the *kunkurs* met with in "Bursatti."

Mr. Smith, V.S., 12th Royal Lancers, instances the cases of two old Arab stallions, examined by Mr. Meyrick. In the internal organs of these animals "*kunkurs*" were found to exist, taking his stand upon which foundation, he cavils at the idea of "specificity," and proclaims that they are general to horses. Mr. Meyrick himself tells us in his communication (VETERINARY JOURNAL, 1878, vol. ii.) that both these animals during life presented numerous melanotic tumours over different parts of the body. And there are still some differences of opinion among the most competent pathologists, with respect to the question of whether or no *Melanosis* is only one form of Cancer proper. See also cancerous deposits associated with Melanosis in the *sheep*

(*Veterinarian*, July, 1868, p. 437). We want an answer to the query as to the percentage of cases where the previous *history* was forthcoming in which "*kunkurs*" were found, before we can determine as to the precise significance of these bodies under the conditions enumerated.

I would here assert the analogy of *kunkur* to the peculiar bodies met with by Mr. Abernethy in the course of his examination of one form of Cancer in man he has especially studied, and called "Tuberculous Cancer"—"tubercular," not because they claimed any connection with that actively destructive malady, so described by Virchow, but because they bore a general resemblance to tubercles, though differing from these latter in all else. Also to the distinctive onion-shaped body found in a certain variety of human Cancer (closely related, probably, to that of Mr. Abernethy), which has received mention at the hands of Billroth, Wilx, and Moxon, and others, and which possesses certain conclusive clinical and histological analogies in addition. Its chief characteristics have been described as follow:—

"(*a*) That it presents peculiar bodies composed of flattened cells disposed concentrically so as to form a scaly-walled globe, whose appearance is like the section of an onion, or like a bird's nest.

"(*b*) These are so large as often to be visible to the naked eye.

"(*c*) When they are numerous and well characterised they are diagnostic (Billroth).

"(*d*) The stroma preponderates over the epithelial part, and may be called schirrus of the skin" ("Lectures on Pathological Anatomy," by Drs. Wilx and Moxon, p. 656).

Those who have attended to the subject of "Bursatti," will at once recognise the extraordinary similarity it bears to the Cancer now under consideration, and to such as are inclined to take exception to this statement, I will merely address the question, Wherein lies the dissimilarity? The one crucial test is that the very thing that is described as diagnostically characteristic of Bursatti—I allude to the presence of the peculiar hard bodies called "*kunkur*"—has had the attention of Billroth directed to it,

to the extent that he has pronounced it to be diagnostically characteristic of a certain variety of Cancer as it affects man. I have therefore come to the very natural and thoroughly logical conclusion that the disease described by me, and those described by Billroth and others, are one and the same, with this distinction, that while mine is equine, theirs, on the other hand, is met with in the higher animal, man!

It now, therefore, resolves itself into the question of whether the physicist, the chemist, or the physiologist is the better suited to explain the mode of growth and development of these bodies. In my humble opinion, I should give the preference to the last-named. If we examine into the sources of the information that has hitherto been elicited on the subject, the reasons for the choice I have made will be both evidenced and justified. *What have the physicists done for us in this matter?* They have certainly made the weighty and momentous discoveries that these bodies are hard, and rough on the surface; that they are of varied sizes, shapes, and forms; that they are brittle, and, to the naked eye, not unlike bony structure; and that they chip off when struck by a piece of metal! Of its origin, the character of its growth and development, its clinical and pathological significance, they are absolutely ignorant, and preserve a discreet silence in respect to them. And, further, on one head they have actually misled us. They have stated it to be bony in appearance, and this statement is not capable of standing microscopic test. The exclusive physicist, therefore, so far as we know him, we do not find to be essential to the life of the science of this disease.

ii. The *chemist*, on the other hand, has informed us of the presence of certain salts that enter into its composition, and that this presence is heightened by the age of the *kunkur*, *i.e.*, the older it is the more inorganic is its composition; and this advances us by another step into the region of our knowledge of the disease. It teaches the fact that during the peculiar disease changes that manifest their presence in certain cells of the skin, and occurring by a process of absorption, according to some pathologists, or deposition as contended for by others, there is gradually "secreted" in and among these cells, and by a system

of abstraction from the blood, certain salts (inorganic matter). Whether this accumulation is to be attributed to an excess of inorganic materials in the blood or otherwise is not yet finally determined, conflicting opinions prevailing among all the authorities on the subject. Although, therefore, we are still ignorant as to the causes of this result (the only agreement being that it is universally considered to be due to the blood), we are possessed of knowledge as to its effects of a very much more decided character. Professor F. W. Beneke's* investigations of Cancer have certainly gone a long way towards removing much of the mystery that hedges around the question, yet, comparatively speaking, so little is that "much," that we are apparently, and for all practical purposes, as far as ever removed from the solution of the problem which involves the determination of the precise causes for this inorganic detritus in Cancer cells. The Professor has pointed out to us the facts that in the greater number of cases of Cancer there may always be observed, during the primary stages of the disease, great development of the body, activity of the liver, and a decrease in the size of the lungs; while in the secretions there are contained large quantities of alkaline and earthy phosphates, which, he is of opinion, may very reasonably be held to account for the excess of these ingredients in the cancerous cells. If this may be taken to be an approximate estimate of things, it will readily be seen that it opens up a vast field for the future labours of pathologists, and that to a comparatively large proportion of our suffering animals it lengthens almost indefinitely a vista of hope in the not very remote future; for what would be necessary would be a consistent treatment by "*regulated dietary*," which must be reduced to such sustenance only as is the poorest in albumin.

Questions have been introduced during this controversy as to the occurrence of specifically-shaped crystals in "*kunkur.*" We were not aware that "specificity" in the shape of the crystals was an indication of aught else than that particular salts very constantly predominated in these "*kunkurs*" in consequence, as we have just mentioned, of their presence in the

* "Pathology and Treatment of Cancer," by F. W. Beneke, Berlin, 1880.

blood; but then we are further aware that the blood of various animals yields, in its *natural** state, variously-shaped crystals, and the occurrence, therefore, of crystals of this or that shape adds but little to the pathological information on the subject of which we are already possessed, it being a concomitant of health, or, in other words, a purely physiological product, and unconnected with the process of disease.

iii. The *physiologist* looks to the root of the origin of the peculiar disease process, and helps to elucidate the secret of the manner of its growth and development, and strives to explain its causation. And in this instance he puts to himself the question: If irritation, the result of the action of soot (as in Cancer as developed among chimney-sweeps), if that arising from inhalation of the smoke of a short, heated pipe—in short, if irritation such as that defined by surgeons generally as laying the foundation-stone, as it were, for the genesis of Cancer change, evokes that destructive disease in the epidermis of man, what is there so dissimilar in that irritation arising from the stings of flies, that it should be incapable of producing as dire results in the case of the horse? And the justification of experience is, I can frankly state, on the side of this theory, if we will only consider how exactly proportioned is, sometimes, the abundant invasion of these insects to the prevalence of the disease; and, on the other hand, how all measures directed towards the destruction of the insects, and prevention of the mischief attendant on their presence, tend to abbreviate very appreciably the chances of the malady assuming an "enzoötic" character, that is, of its attacking large numbers of horses simultaneously.

In unison with the exposition of the most eminent surgeons as to the nature and pathology of Cancer, I was led to devise means for the solution of the problem under present consideration, and which I take to be the secret of the production of bursattic *kunkur*. And I have endeavoured to define it as *the product of an augmented endogenous cell-growth in a part the seat of an applied stimulus of a peculiar degree;* this stimulus, in many instances,

* Consult Dr. Hoppe Seyler's "Handbuch der Physiologischund Pathologische-Chemischen Analyze"; and "Lehrbuch d. Physiolog. Chemie," vol. i., 2nd ed., 1853.

being manifestly afforded by the sting of a fly, similar in its effects to those of the hot pipe and soot in the part these play in the development of human Cancer. The deposition of calcareous salts from the blood on this newly-formed cell-product forthwith renders conspicuous its contour, and so we now have formed little bodies, which are as foreign to the part in which they are soon to become imbedded as they are destructive, and so deleterious withal as to raise formidable barriers in the way of the salutary repair of the tissues. Acting as do foreign bodies, and being amenable neither to absorption nor to removal by the knife of the surgeon, they greatly retard the process of normal repair in the wound that is resultant on the accompanying surrounding ulceration. And thus, even when by the overlapping of the skin union be established, the irritation at work around each of the embedded *kunkurs* shortly induces death of tissue, and degeneration which, by confluence, causes *slough*, the result of which is a renewed ulcer; which, in its turn, and in a similar manner, is followed by imperfect repair and renewed tissue-slough, and, eventually, unless it be eradicated by an exceptional surgical success, when it terminates in permanent resolution (?), the whole feature of the disease is merged in fresh recoveries and renewed attacks, and the death of the animal becomes a question of time. All that tends to promote constitutionally the strength of the animal, and bring about active repair of the degenerating tissues, will aid in creating fresh "recoveries," and thus we find that favourable climatic conditions, and the skilled assistance of surgery combine in materially curtailing the period of the obstinate course of the disease. But, alas! how often have even these two valuable auxiliaries been overthrown ultimately, and the disease reappeared—perchance with added vehemence.

But beyond exhibiting the properties of a foreign body, *kunkur* does not play the dire part of the cells not similarly circumscribed by calcareous deposition, but which, nevertheless, imbued with the change peculiar to Cancer, work hidden havoc by their pronounced tendency to infiltration of the adjacent parts, and to systemic invasion through the process of normal absorption carried on by the veins and lymphatics.

Minute microscopic investigation of these bodies reveals the fact that they consist of neither bony elements (Western), Scrofula cells (Hodgson), nor inspissated pus (Phillips), as was formerly believed to be the case on bases purely conjectural. While a fourth theory of their containing crystals of uric acid and oxalate of lime (Meyrick), and windmill-shaped crystals (Steel) has been accounted for in a preceding part of this chapter, it having been shown that their presence is due to an entirely accidental occurrence, and furnishes no fresh evidence bearing on the pathology of the disease phenomenon. We were unaware that crystals in morbid products were aught but a *result** of the disease, be it what it might ; and therefore, I trust, under the circumstances, I shall be pardoned for the cursory notice I bestow on their presence. A mention that has evoked, perhaps, the strongest criticism in connection with this matter is: Why should the process of calcareous deposition be so pronounced in the equine patient as compared with that in the human ? And, in answer, I would just reiterate my conviction, and I have my justification for so doing in the results of all clinical experience, that this is explicable on the ground that a special calcific diathesis doubtless obtains in the equine species which is less perceptibly present in the human ; *instance*, the greater frequency with which exostotic growths occur in the equine subject. While the fact that either species alike possess this redundancy of inorganic material in the circulatory blood during certain periods, and under special conditions, and which is known as a *diathesis*, has received incontestable proof in the dissection and *post-mortem* room, as well as in the clinical wards. The greater liability in old age to fractures shown equally by the horse and man ; of the removal of organic tissue, and its substitution by inorganic salts in cartilage ; of the fusing into one of the various vertebræ of the spinal column from inorganic deposition taking place between and around them as a result of old age, whether in man or horse, are evidences corroborative of the fact enunciated.

* Pigmentary matter and crystalloid forms met with in Bursatti concretions are simply the products of normal blood, and indicate prior extravasation.

The characteristic disposition of the cells in the epithelial variety of Cancer to settle themselves in concentric layers, makes an opportunity for the calcareous deposition amidst them to convert them into conspicuous globular bodies—*visible nodules;* and I have on another occasion drawn attention to the process of this singular transformation in referring my readers to Dr. Green's work on "Morbid Pathology," pp. 193-4. See also "Lectures on Pathological Anatomy," by Wilx and Moxon, plate vi., *e* and *f;* also "Tuberculous Cancer" of man, by Abernethy, etc.

When, on the occasion of my reviewing the four theories as to "*kunkur*" at present propounded, I had an opportunity of placing my opinions before the readers of the VETERINARY JOURNAL, and of submitting to the test of their judgment my system of examination thereto, I was subjected to a considerable amount of adverse criticism, especially on the score of the "positive-*cum*-negative" method to which I had resorted, and because I pointed to some incompatibility, some antithesis between right and wrong. I will contend this, that where a question of science is placed before the public, it becomes the duty of all such as are competent by experience or knowledge to discharge it, to detect any flaws, should there be any, in the various views of the subject that are certain to be brought forward, and, when detected, to bring them to the general notice in a severe but just manner. That it is a breach of good taste to be too hard, more so than is warranted by the circumstance, I thoroughly feel and appreciate. Now, it is my purpose to bring before my readers in this place the theories to which I have just made reference, together with the course I adopted in regard to each. To take case

No. 1.—Veterinary Surgeon Hodgson contended that *kunkur* was made up of "Scrofula cells," and that during one or other of its stages of development it underwent fatty metamorphosis. Now the answer I gave this gentleman's theory was that, undoubtedly right as he was in stating that it was subject to fatty change, he was as undoubtedly wrong in his opinion, expressed without any microscopic examination of the disease, that it was composed of "Scrofula cells." His second theory as to fatty metamorphosis, and with which I concur, is easily explained, for we know that morbid products which are richly cellular in their

composition, when deprived of the normal blood supply, are predisposed to fatty change, which is often followed by calcareous infiltration.

Now as to theory

No. 2.—Veterinary Surgeon Phillips, as surgeon and abstract clinical observer, maintained that these bodies ("*kunkurs*") were so many little pellets of inspissated pus; and we may here remark that Mr. Phillips has also not thought it proper to subject his opinion to the test of microscopic examination. Further, I may remark that in former times it was the general opinion that the nodules in Tuberculosis were also simply masses of inspissated pus; but the development of the science of histo-pathology has now wholly dissipated that theory. And so I make no doubt that Mr. Phillips, imbued with this idea, readily fell into the belief that Bursatti concretions were in the same manner masses of inspissated pus. *These latter, however, are discriminated from among their counterfeits through the circumstance of their possessing no distinct intercellular substance.* Any one who has examined the minute structure of a Bursatti concretion during its various stages of development will be aware that, *in addition to containing cellular elements, it is possessed of an abundant intercellular substance or fibrous matrix, among other things, depending upon the stage of the development at which it is subjected to examination.*

No. 3.—Veterinary Surgeon Western has maintained that these bodies are so many centres of independent osseous development. This I have negatived by means of careful microscopic examination of the structure of the same during *all* their stages of development. Mr. Western, in coming to the above conclusion, has chosen to adopt the *rôle* of a mere physicist. He has brought himself to the maintaining of this, because of the fact that these bodies, in their later stages, are often hard to the feel, brittle, and chipping when struck by metal, etc.—properties that very naturally engage the primary attention of the physicist. Now I do not deny that bony transformation does take place during certain morbid developments; but I do maintain this, that in all the changes of "*kunkur*"-structure, I have never yet succeeded in convincing myself of the presentment of any process

resembling that of bony formation; while the brittleness and hardness are demonstrably due to chemical changes occurring in them during their progressive stages of development. When analysed, these bodies have discovered a percentage of a little over ten in the hundred of inorganic salts; besides which, any addition of acids to these bodies occasions an active effervescence, through the decomposition of carbonates. So that, whether we consider it from the point of view of its histology or that of its chemistry, the "bony theory" of *kunkur* becomes alike indefensible.

(*To be continued.*)

Editorial.

THE PRACTICAL EDUCATION OF STUDENTS AND VETERINARY SURGEONS.

We have, in the two former articles under this heading, pointed out the most prominent deficiencies, and we now desire to put forth hints, in the hope that some means may be adopted to save the country from being afflicted by so many incompetent practitioners. We have been frequently asked whether, in our experience, any college is pre-eminent for giving efficient practical instruction, and we have been compelled to answer in the negative. We may, therefore, reasonably submit that the system of instruction is radically bad. It is no use denying this fact, so obvious to all who give any consideration to the subject, and the pressing need is to form a remedy. Cannot some college take the initiative in doing this, which, we believe, would meet with substantial recognition? We have heard of students who, in their whole college curriculum, have never listened to a lecture on the age of the horse and other domesticated animals. Is this a proper state of affairs at this period of the nineteenth century, when to "know ages" is one of the most important duties of the veterinary surgeon? We who write this article have never held office among the examiners of the Royal College of Veterinary Surgeons, and we may, therefore, claim to impartially declare it imperative that the mistaken leniency which has thus far impelled them to pass incompetent students should cease. It is most unfair to the public; and when we remember that if the examiners pass a man, they, in the words of the diploma, certify that they have "found him fully qualified to practise the art and science of veterinary surgery and medicine," we see what an enormous responsibility they assume.

We see how incumbent it is upon them that they should not permit their feelings to be so biassed, or their judgment so warped, through fear of being taunted with the number of rejections, as to make them pass men they perceive to be incapable. The mistaken notion appears

to prevail in some quarters that, because so many students present themselves for examination, therefore a certain proportion should pass; but we say to the examiners, only pass those whom the public have a right to expect you to certify as competent men. Anything contrary to this is a pernicious idea, and there is not a shadow of foundation for it; not even the lowest and worst reason of all, that there is a dearth of veterinary surgeons in the country. On the contrary, there is only a scarcity of competent ones, whom the public will most eagerly welcome. We do not now say where the student would best learn the practical rudiments of his profession, but we do strenuously affirm that he should thoroughly know them before he is permitted to receive a diploma; and we have a right to look to the examiners to do their duty in this regard. If a student does not learn the practical rudiments of his profession before, or during, his college course of study, where and when is he to learn them? It is rumoured that some of our college teachers do not profess to enter much into the study of practical matters with their pupils, but that they give the scientific and theoretical groundwork, which the students can practically apply after gaining their diplomas. Surely there must be some mistake here, or the examiners must otherwise be expected to pass those who do not know the practical rudiments of their profession? Let us suppose a school of carpentry, with a number of professors who lecture on the various kinds of timber,—the best for making tables, chairs, and other useful articles, the best sorts of nails, glue, and other means of joining the various pieces together, or how to do this, and then, after a prescribed course, down come the examiners. Let us suppose that the latter, after applying their tests, then give diplomas, and their newly-constituted joiners go out into the world. Let us imagine that one of these begins business in our neighbourhood, and, in the faith of his having "passed the college," we send for him to repair some of our furniture, and, observing him going about his work in a bungling and extraordinary fashion, we ask him what he is doing, and suggest that he does not use his hammer or plane in a proper manner. If he should reply, "Oh, the professors of the college did not teach us, or make us do, these practical things; they said we should learn them by experiments on our employers' property, after we had obtained our diplomas"—should we continue to let them gain experience on our furniture, or should we not at once show them the door? What right, therefore, has any one to suppose that incompetent veterinary diploma-holders shall gain rudimentary experience by experimenting on the valuable horses and cattle of those who trust in them, because they have been certified as fully qualified to practise the science and art of veterinary surgery by the duly appointed examiners of the Royal College of Veterinary Surgeons? We often hear it said that the students at the various colleges nowadays do not know so many practical matters as students formerly did, because they come very often without any previous acquaintance with horses and cattle, and that this is the reason that so many newly-made veterinary surgeons are so wanting in practical and manipulative skill. Here, again, the examiners hold the key of the position. It is their mission to ascertain that the candi-

date for a diploma is *properly qualified*, and no mistaken feelings of leniency or compassion should lead them to pass incompetent men. No matter what outcries may be made against them for doing their obvious duty, they may be quite certain that, at least so far as a fair standard of practical requirement is exacted, they will be supported by the Government, by the public, and by the profession at large. It is unreasonable to think that the advocates of practical incompetency can gain the day. We may here remark that we are unable to see why the indispensable subjects we have mentioned cannot be taught with little trouble in our veterinary colleges. Doubtless, the manipulative and operative could easily be so, if systematic courses of instruction were given on such matters. Dr. George Fleming has truly described the manual details of operative veterinary surgery as, perhaps, the most important part of the profession of a veterinary surgeon ; and, further, says, "manual dexterity is as essential to him as to the surgeon of mankind, and it must be obtained in the same manner, in the dissecting-room, the hospital, and wherever and whenever an opportunity offers to perform, or assist in performing, an operation of any kind." A bitter cry comes from the public that so many veterinary surgeons are utterly incompetent, and it is loudly asked why the colleges do not turn out better practitioners. We must, in candour, give the right answer—now very generally admitted as correct by the members of the profession—and it is, that there is something radically wrong and defective in the system of instruction imparted to the veterinary student. The college course now occupies double the time it did twenty years ago ; yet it is frequently asserted that there is no improvement, but, rather, the reverse, in practical attainments. Where is the fault, and who will be the first to supply the remedy?

BURSÆ MUCOSÆ.

BY PROFESSOR F. EICHBAUM, OF GIESSEN.

(*Continued from page* 338, *vol. xix.*)

Besides these globular or slightly compressed bursæ, we find the cylindrical tendon sheaths principally situated on the extension and flexion sides of the joints of the extremities. They are sheath-like bursæ which clothe the tendons and protect them from neighbouring hard bodies (bones, etc.). All these structures possess a distinct *synovial membrane* (the mucous or serous coat). The internal layer is smooth and provided with a few small papillæ, the external layer is firmer, tougher, and forms a resisting fibrous covering, *subsynovial tissue*. It is also called the *Retinaculum tendinum*, and is in connection with the aponeurotic covering and the ligaments of the joints or with the periosteum of the adjacent bones ; it serves to strengthen the tender synovial coat beneath, and to fix and hold the tendon with the sheath in its position. They vary in shape : sometimes they are elongated like the synovial sheath, at others they cross over the tendon like a bridge, when they are called *transverse* or *ring ligaments*. The extension of the retinacula are seldom more than the sheath itself, so that in the sheath many small gaps may sometimes be found at either end or in the centre. Under pathological conditions (for instance in Hydrops of the sheath) the

sheath projects beyond the support. Heinecke* calls these openings "endpforten" (end-gates), whilst those which occur in the centre of the fibrous band he terms "zwischenpforten" (intermediary gates).

The synovial sheath not only covers the internal surface of this *retinaculum* and the bone over which the tendon glides, but it folds itself over the tendon also. We can therefore distinguish two layers in every tendon sheath (just as we do with the serous membrane of the peritoneum or pleura), a parietal layer in connection with the retinaculum or bone, and a visceral layer covering the tendon; both layers being placed, as Henlé describes it, like one hollow cylinder within another, with their smooth surfaces towards each other, the space which normally exists between them having a small quantity of yellowish oily fluid (synovia) in it. When these sheaths are very long they contain arrangements whereby the tendon may be supplied with its necessary nutrition. This takes place in the following manner:— One part of the parietal layer—generally that covering a bone—doubles itself inwards, and forms a projection into the interior of the sheath, carrying the vessel with it in its centre, in a similar way to the mesentery doubling in from the parietal layer of the peritoneum to the intestines. This duplicature has received the name of "*Vincula tendinum*," "*Mesotenon*," or "*Mesotendon*." The shape of these duplicatures varies, either being flat and long, or more cylindrical, having between the layers a quantity of loose connective tissue; a complete space, however, is not always present between the tendon and sheath. We can find nearly every grade between a simple connective tissue covering the tendon and a fully-developed sheath. Thus the loose connective tissue surrounding tendons may form numerous spaces on the surface of the tendon, which are filled with a serous fluid. Examples of these early sheath formations may be found on the tendon of the *M. levator labii, Superioris proprius* (Supernaso labialis, *Fleming*), and to some extent on the flexors and extensors of the extremities of the horse. They may with propriety be called "*cellular sheaths*," as Günther† has suggested.

The tendon sheaths are, as already mentioned, the least changeable of all the forms of the structures under our consideration, for they can always be found in the fœtus. The microscopical examination of them is sufficient to show that their synovial membrane is thinner and weaker than the walls of the subtendinous bursæ. This is in unison with the circumstance that they are subject to less pressure than the Bursæ mucosæ, and also that they are considerably supported by the fibrous retinacula which surrounds them. Synovial papilla are seldom to be found on their internal surface. They are most abundant, however, on the anterior wall of the sheath of the perforans tendon, at the posterior part of the phalanges, and more especially at that part of it which covers the sesamoids, where it presents a velvet-like appearance; something similar can occasionally be seen on all sheaths, and in all situations in them.

When two or more tendons are placed together, they may be enclosed in a sheath common to them all, as, *e.g.*, the sheath of the perforans and perforatus tendons at the posterior surface of the carpus. In such cases the mesotendinous portion of the synovial sheath doubles on itself, so that it forms a closed sac between the tendons, thus they are united together by it. If a tendon divides into two or more branches, the sheath also divides, and accompanies and covers its own particular branch, as the sheath of the M. tibialis anticus (Flexor metatarsi). It has already been mentioned that the sheaths of tendons sometimes communicate with Bursæ mucosæ, and they may also communicate with joint capsules, as, for instance, does the sheath of the perforans with the true hock joint, and that of the M. extensor

* *Loc.*, page 26.
† "Myologie des Pferdes," p. 31.

carpi ulnaris (external Flexor metacarpi) with the radio-carpal joint. Lastly, the wall of the sheath is, in many cases, more or less united to the tendon so as to form a *Bursa vaginalis*, as may be observed on the tendon of the perforatus of the hind limb where it passes the posterior part of the hock and fetlock joints, and on the tendon of the M. biceps brachii (Flexor brachii), and the tendon of the M. coraco-brachialis.

A similarity between the structure of these bursæ and joint capsules may be readily seen, even on a very superficial examination of them. In both cases there is a thin, delicate, transparent membrane with a subsynovial connective tissue, frequently containing fat, and an outer fibrous layer. Their internal surface is smooth, shining, and possesses papillous excrescences; the fluids found in each are, according to all authors, chemically and physically very similar, if not the same. Finally, the circumstance that Bursæ mucosæ are sometimes in direct communication with the capsules of joints or sheaths of tendons, ratifies the above assertions. Not only are there three tissues macroscopically the same in their anatomy, but their histological structure is the same, or at least very similar; so much so, that all works on anatomy and histology describe all three under the common terms synovial membranes or synovial sacs

Bursæ mucosæ and B. vaginales offer great difficulties for microscopical examination, owing to the delicacy of the tissue, which is easily injured in manipulation. This, no doubt, has been the cause of much of the controversy respecting the structure of these tissues, and the place they should occupy in the classification of the organs and tissues of the body, which questions are very differently answered by various histologists. From a broad point of view, they may be classed with serous membranes, although some give them an intermediate place between serous and mucous, whilst others put them between the connective and serous tissues; and latterly they have been classed by Soubbotine with glandular tissues. Perhaps, before we relate the results of our own investigations, it would not be uninteresting to give a short account of the literature on the subject.

Bichat, in his "Traite des Membranes," divides the membranous organs of the animal body into three principal groups or systems:—1. The system of mucous membranes, and the external skin; 2. The system of the serous and synovial membranes; and 3. The fibrous membranes. He then divides the synovial membranes into tendon sheaths and joint capsules Most anatomists have followed Bichat's classification, and it is the one commonly followed. Henlé,* in 1841, described the bursæ and tendon sheaths as "false serous sacs" (unechte seröse säcke), and considered them to be breaches of continuity in the connective tissue, not lined with epithelium except when they were continuous with a joint capsule, in which case the epithelial lining must be looked upon as a prolongation of that membrane. This latter view, however, was opposed by several authors who wrote about the same period; for instance, Bruns† and Gerber‡ describe an epithelial layer for mucous sheaths, as does also Reichert,§ 1843, and Bendz,‖ 1846, for the Bursæ mucosæ of the skin and muscles. The last-named observer found these bursæ, in horses and other domesticated animals, to be covered with a distinctly cellular epithelial lining, composed of transparent, flat, oval, or irregularly angular-shaped cells, varying

* "Allgemeine Anatomie," 1841, p. 364.
† "Handbuch der Allg. Anatomie," 1841.
‡ "Lehrbuch der Allg. Anatomie," 1841.
§ Müller's "Archiv," 1843.
‖ "Handbuch der Allg. Anatomie," 1846 and 1847.

in size from 0·0004 to 0·0008 of an inch (German), with a granular nucleus, and a dark nucleolus. They are usually composed of a single layer, and not, as is the case in tendon sheaths, by several layers of cells. Kölliker* showed, in 1847, that both kinds of bursæ were only partially covered by an epithelial lining, which was mostly in a single layer, and owing to the close union of one cell with another, it was difficult to isolate them for examination. When this was effected, they were found to be polygonal cells from 0·004 to 0·007 lines in size, with round, easily-flattened nuclei from 0·0025 to 0·003 lines in size, and some small, flat granules. Kölliker then describes special places where these epithelial linings are wanting; for instance, he says they are absent both on synovial membranes and mucosæ bursæ, where they have a dull, yellowish appearance, resembling the nature of fibro-cartilage. The synovial capsules of joints comport themselves very similarly. Kolliker places the synovial sacs of the muscular system and joints midway between the simple connective tissue spaces and those of the serous membranes. His† also puts forward very similar views; he says the synovial sacs and the serous and vascular spaces are true internal spaces (Binnenraume) produced by a splitting of the germinal layer, due to histological differences at these particular parts, and that these spaces are at first separated from their surrounding tissue by spheroidal cells, which, later on, become flattened. These cells, which have certain constant peculiarities respecting their origin, form, and function, differ so materially from the surrounding cells (even when they are first formed) that a special designation for them is necessary to point out their relation to the internal surface of the body; hence His called them "endothelium."

His places synovial formations between the serous cavities and simple connective tissue spaces. When they originate from mechanical influences, they are separated from the connective tissue, which becomes looser and more cellular the nearer one approaches the internal surface. The cells become pressed so close together that they resemble a many-layered epithelium; later on, these cells become flattened, just as we have seen the endothelium in the embryo does.

Recklinghausen discovered that the addition of nitrate of silver was sufficient to distinguish the connective tissue cells from the endothelial cells. Hüter‡ by this silver method of preparing the synovial membrane of joints, came to the conclusion that it does not possess an epithelial lining, but that its internal layer is composed of modified nucleated connective tissue, which, at first sight, has an appearance somewhat resembling the peculiar change which endothelium undergoes on the addition of nitrate of silver, hence he terms it "epithelial-like connective tissue" (epithelioides bindegewebe). Hüter further excludes the existence of an epithelial lining, from the fact that the vessels of synovial membranes lie free, which is never the case in serous membranes; then again, when synovial membranes are treated with a solution of nitrate of silver, the intercellular substance stains a brown colour, which at places broadens out, and separates the clear spaces from each other. This appearance is often found in tissues which originate from mechanical causes, and Hüter called them "keratoid tissues," because they somewhat resemble the cornea after it has been impregnated with silver.

Whilst these conclusions were being disputed by Schweigger Seidel,§ who

* Kolliker, "Mikroskopische Anatomie," 1850, p. 229.

† Op. cit.

‡ "Zur Histologie der Gelenkflachen und Gelenkkapseln," Virchow's *Archiv*, Band 36.

§ "Verhandl. der Math-Phys. Classe der Gesellschaft der Wissenschaften zer Leipzig," Band xviii.

tried to show that a complete lining of regular nucleated epithelium existed, Böhm, on the other hand, denied it. Böhm examined the synovial membrane after adding a solution of salt, and found the inner surface was covered with a layer of cells. Their shape was either round or polygonal, and about the size of white blood corpuscles, in which nuclei could be distinctly seen. In places the cells lie so close together that their contours touch each other, whilst at others there are large spaces between them; in this way they appeared to be very irregularly scattered under the field of a microscope. He also noticed that this layer of cells was frequently broken by capillary vessels, and therefore looked upon them as modified connective tissue cells, which, owing to their regular arrangement, somewhat resembled epithelium, although they cannot be considered as such.

Albert,* on the other hand, asserts that the synovial membrane of joints possesses a nucleated cellular lining, which, of course, as Hüter has already declared, is not present on all parts of the capsule. The internal surface of the synoviales of tendon sheaths and the typical bursæ comports itself the same as the zone of the synovial membranes surrounding the heads of bone (Ansatz-zone), *i.e.*, the epithelial covering is wanting. Möller, however, after treating these sheaths with a ½ per cent. sol. of osmic acid, as well as by the silver method, showed that endothelium existed on their inner surfaces.

The works of Tillmanns,† Steinberg,‡ Bentzen,§ Colommiatti,‖ Reyher,¶ and Sluys,** are all worth mentioning.

To avoid repetition we will mention here that the four first-named say there is an endothelial lining to these synovial membranes, whilst Reyher and Sluys deny its existence. Most of these investigations were conducted with the synovial membranes of joint, as was also those recently published by Soubbotine.†† Soubbotine, however, extended his researches to the synovial membranes of many cattle, calves, and sheep; and discovered that in all these animals the free surface of these membranes was covered by nucleated cells of various forms and sizes, and generally several layers thick. In those places where the papillæ are few in number the cells are flattened, and thicker than ordinary endothelial cells. On the other hand, the papillæ themselves are covered with cylindrical and polyhedral cells, between which cupped cells (Becherzellen) can often be seen. The vessels in the synovial membranes are never uncovered on the surface, and Soubbotine agrees with Tillmanns on this point. Soubbotine does not class the synovial membranes with the serous, but says they are more closely allied to the glandular tissues, and looks upon joint capsules as enclosed glands.

From the foregoing literature it is evident that most of the authors have confined their researches to the synovial membranes of joints, whilst the boundary walls of the bursa are only mentioned in a comparative sense. It is only the older works, such as those of Bruns, Gerber, Reichet, Bendz, Kolliker, Albert, and Möller which specially treat of the structure of the organs in question, and these only with regard to their endothelial lining, and even here we find several contradictory statements.

* Stricker, "Handbuch der Lehre von der Geweben," S. 1230.

† Tillmanns, "Beitrage zur Histologie der Gelenke," Arch. f. Mikroskop. Anat., 1874. "Zur Histologie der Synovial-Membran, v. Langenbeck's Arch. f. Klin. Chirurgie," Bd. xix. "Untersuchungen ueber die Unzuverlassigkeit der Versilberungsmethode fur die Histologie der Gelenke, Virchow's Arch., Bd. 67. "Die Lymphgefasse der Gelenke," Arch. f. Mikroskop. Anat., Bd. xii.

‡ "Untersuchgn ueber die Structure der Synovial haute Mang," Dis. 1874.

§ Jaresber. von Hoffmann u. Schwalbe, 1875.

‖ *Ibid.*, 1876.

¶ *Ibid.*, 1874.

** *Ibid.*, 1876.

†† Soubbotine, "Recherches Histologiques sur la Structure des Membranes Synoviales." *Archiv de Physiologie Normale et Pathologique*, 1880, p. 532.

The older authors, before the introduction of the silver method of preparing specimens, positively held the opinion that an endothelial layer was present, whereas, since its use, Albert denies its existence, although Möller maintains it is present in the sheaths of tendons.

Whilst such different views as these are promulgated respecting the histology of these questionable structures, we thought some new investigations of these tissues in horses would be beneficial; therefore we venture to relate the results of our experiments.

(To be continued.)

Proceedings of Veterinary Medical Societies, &c.

CENTRAL VETERINARY MEDICAL SOCIETY.

AT the annual meeting of the above Society, in October, Mr. F. W. Wragg was elected President; the Vice-Presidents being Messrs. J. Woodger, J. Rowe, C. Sheather, and Professor Axe.

A meeting was held at the First Avenue Hotel, Holborn, on the 13th November, the President occupying the chair. The other Fellows present were Messrs. H. J. Hancock, C. Sheather, J. Hall Brown, W. South, F. Ingersoll, F. G. Samson, A. Broad, J. Rowe, J. Woodger, G. Gray, Professor Pritchard, J. Broad, Arthur Broad, T. Moore, and J. B. Martin.

Mr. WRAGG addressed the meeting as follows:—Gentlemen: It is my pleasing duty this evening to thank you for the great honour you have conferred upon me by electing me as your President for the ensuing year. I feel great pride and gratification at being called upon to preside over the deliberations of our Society; yet these emotions are considerably qualified by a sense of the responsibility attached to the position, and by a distrust of my capability to occupy it in the creditable manner required. This consciousness of my incapacity will, I hope, have the effect of stimulating my energies and zeal, so that when my term of office shall expire, I may retire from my post with a consoling reflection that I have done everything possible which could promote the interests of the Central Society. We have a large number of subscribing members, and I earnestly invite you all to actively co-operate with me in striving to keep this Society in the forward position it has so long honourably occupied. Not only is your presence required at our meetings, but I wish you to bring forward even more subject-matter for discussion than you have hitherto done. The benefit of Veterinary Medical Societies is manifest. They bring together a large number of the members of the profession to which we have the honour to belong, many of whom we seldom have an opportunity of meeting, and friendly greetings are exchanged; at the periodical meetings opposing views are discussed, and, by this means, we improve our scientific and practical knowledge, thereby helping to raise the professional status. I will claim your indulgence, gentlemen, for the brevity of my remarks, as the time at our disposal is short; and allow me again to ask you to let us have well-attended meetings, and abundance of topics of discussion. Above all, let those discussions be carried on with gentlemanly bearing, free from jealousy, remembering that we are all working together for the common good of our profession; so that at the year's end we may look back on our work with pride and pleasure, and feel that it has been accomplished with a zealous honesty of purpose. I will detain you no longer, gentlemen, but express a wish that all will enjoy a most pleasant evening.

Mr. W. SOUTH introduced to the meeting an apparatus for administering

to the horse inhalations of chloride of ammonia. It consisted of a three-pint glass jar, with a double-branched tube inlet fitted to the cork. The tube reached down within the jar just sufficiently to dip beneath the water within (about a pint). In the aperture of one branch was placed a solution of ammonia, in a pad of cotton wool, and in the other hydrochloric acid, similarly placed. To this was fixed a flexible tube, with a wooden nozzle, for introduction within the horse's nostril, the other nostril requiring closure by the hand. This form of inhalation has been tried, and found useful, by several medical men, in cases of Nasal or Eustachian Catarrh. The solution of ammonia used is B.P. (one part of Liq. ammon. fort. to two of water; the acid is the pure B.P.)

At the conclusion of the meeting, the Fellows, with several visitors, attended the annual dinner of the Society at the above hotel.

ALFRED BROAD, *Hon. Sec.*

YORKSHIRE VETERINARY MEDICAL SOCIETY.

THE concluding quarterly meeting for the year was held at the Queen's Hotel, Leeds, on Thursday, 30th October, the President (Mr. Parlane Walker) in the chair. The following members were also present, viz., Messrs. M. Naylor, Joseph Carter, J. W. Anderton, J. M. Axe, Peter Walker, G. Schofield, B. Smith, Joseph Freeman, W. Lodge, G. Carter, J. Scriven, P. Deighton, T. C. Toop, G. Whitehead, H. Snarry, Greenhalgh, G. T. Pickering, R. L. Robertson, A. W. Briggs, J. Bell, A. W. Mason, H. Pollard, T. Fletcher, J. H. Ferguson, and the Secretary. Mr. McCormick was present as visitor.

Apologies for non-attendance were received from Professor Williams, E. C. Dray, Danby, Jno. Freeman, Bale, H. Cooper, G. Bowman, H. and P. Carter, Jno. Schofield, and T. Greaves.

The minutes of the previous meeting were read and confirmed.

Mr. ANDERTON proposed, and the SECRETARY seconded, that Mr. Herbert Pollard, of Wakefield, be elected a member. Carried unanimously.

The SECRETARY proposed, and Mr. JOSEPH CARTER seconded, "That a letter of condolence from the members of this Society be sent to the widow and family of our late highly esteemed friend, Mr. Jas. Freeman." Carried unanimously.

Mr. A. W. BRIGGS read an able and practical paper "On the Treatment of Wounds." The essayist described the various descriptions of solution of continuity in the tissues principally coming under the care of the veterinary surgeon, and then went on to explain how the healing processes were effected. He advocated the constant use of cold water in lacerated, as well as in incised, wounds, and recommended the use of drainage tubes in deep wounds of the muscles and faschia. The essayist next described the nature and treatment of Sandcrack, advocating the wedge treatment as being very successful.

In the discussion, the main topics of argument were the treatment of deep sinuous wounds and Sandcrack. Messrs. J. S. Carter and George Carter, related cases of wounds deeply situated in the loins, treated successfully after gaining a depending orifice.

Mr. TOOP said he had been successful with using dissolved bone drainage tubes in Poll Evil and Fistulon Withers.

Messrs. Ferguson, Pickering, and the President continued the discussion on wounds. In the discussion on Sandcrack, Messrs. Ferguson, G. Carter, the President, Pickering, Schofield, Toop, Peter Walker, and T. Fletcher took part. Mr. Briggs replied to the various objections to his opinions, etc.

Mr. JOSEPH CARTER proposed and Mr. FERGUSON seconded a vote of thanks to the essayist. Carried unanimously.

The Treasurer submitted the financial statement for the year, shewing a balance in hand of £45 18s. 10d.

The election of officers for 1885 resulted in Mr. J. E. Scrivener, of Aberford, being unanimously chosen as president, Messrs. P. M. Walker, Ex-President, J. S. Carter, and S. C. Toop, Vice-Presidents. The Treasurer and Secretary were re-elected.

Mr. SCHOFIELD proposed, and Mr. NAYLOR seconded, a vote of thanks to Mr. Parlane Walker for his services in the chair during the year. Carried.

The members were entertained to a knife-and-fork tea, by invitation of the Leeds members.

NORTH OF ENGLAND VETERINARY MEDICAL ASSOCIATION.

THE usual quarterly meeting of this Association was held at the County Hotel, Newcastle-on-Tyne, on Friday, November 28th, the President, D. M'Gregor, Esq., in the chair.

Present—Messrs. Wheatley, South Shields; Awde, Stockton-on-Tees; Dudgeon, Sunderland; Hy. Hunter, A. Hunter, Elphick, Gresty, W. Hunter, and the Secretary, Newcastle-on-Tyne. Messrs. Finney, Stewart, Marsden, and Woods were present as visitors.

The minutes of the previous meeting having been disposed of, the officers of the Association for the ensuing year were elected, viz., President, Mr. Elphick, Newcastle-on-Tyne; Vice-Presidents, Mr. Nisbet, Fence Houses, and Mr. Hedley, Darlington; Secretary and Treasurer, Mr. Gresty, Newcastle-on-Tyne; Auditors, Messrs. C. Stephenson and A. Hunter, Newcastle-on-Tyne.

In returning thanks to the members of the Association for his unanimous election as President, MR. ELPHICK said it was his intention to deliver an inaugural address on the occasion of the annual meeting, which will be held at 3 p.m. on 27th February, 1885, when he hoped to see a good muster of members and their friends.

Mr. GRESTY having returned thanks for his election as Secretary and Treasurer, Mr. Drake, M.R.C.V.S., was unanimously elected a member of this Association.

Mr. M'GREGOR proposed, and Mr. GRESTY seconded the proposition, that at the next meeting Mr. Marsden, M.R.C.V.S., be elected a member of this Association.

Mr. H. HUNTER narrated an interesting case of a horse that while under treatment in his infirmary for catarrh was attacked with colic, attended with such an amount of tympany that the animal's life was in danger. As a last resource Mr. Hunter performed the operation of paracentesis abdominis, inserting the instrument on the right side halfway between the point of the ilium and the last rib. On withdrawing the trocar the gas rushed freely out, and continued to do so for half an hour. The animal got instant relief, and ultimately did well.

Mr. W. HUNTER stated that he had repeatedly performed the operation, but was only successful upon one occasion.

Mr. STEWART stated that upon three occasions he had performed the operation, and each case was successful. He claimed for the operation to be successful it must be performed early, and not when the animal was in a state of collapse.

Mr. AWDE said that he had tried the operation of injecting medicines into the tracheæ of calves for the destruction of strongules, as recommended by some continental writers, but that in his cases the experiments resulted in failure.

The adjourned discussion on Mr. A. Hunter's paper on "Diseases of the Foot," read at the last meeting, was then resumed, and an interesting and animated discussion, in which all present took part, followed. In some remarks upon *seedy toe*, MR. ELPHICK pointed out the necessity of removing the shoes when examining a horse as to soundness.

A vote of thanks to the retiring President and Secretary for their services during their time of office having been given and acknowledged, the meeting terminated.

WILLIAM W. SMART, *Hon. Sec.*

THE SCOTTISH METROPOLITAN VETERINARY MEDICAL SOCIETY.

THE usual quarterly meeting of this Society was held in the London Hotel, Edinburgh, on Wednesday, November 12th, Professor Walley in the chair.

Amongst those present were Professors Walley and Williams, Messrs. Borthwick, Borthwick, jun., Grey, Aitken, jun., W. O. Williams, R. Rutherford, Anderson, of Glasgow, Thompson, A.V.D., Connachie, of Aytoun, Connachie, of Selkirk, Fingzies, Hutton, Cunningham, Cassels, Robinson, Jackson, Watson, Galloway, and the Secretary.

The minutes of the previous meeting were read and confirmed. The following office-bearers were elected for 1885:—President, Professor Williams; Vice-Presidents—Messrs. Hutton, Kelso; Fingzies, Lochgelly; and J. Aitken, Dalkeith. Professor Lewis was re-elected honorary secretary and treasurer. Messrs. Borthwick and Cunningham were appointed auditors.

It was agreed that the next conjoint annual meeting of the three Scottish Societies should be held in Glasgow some time in December, the date to be arranged by the Secretaries. It was also decided that the annual dinner of the Scottish Metropolitan Society should be held as usual in February.

Mr. HUTTON, Kelso, then read the following interesting paper on

Intra-Tracheal Injections in the treatment of Hoose in Calves.

Without entering into any detailed account of that common disease of the respiratory organs in young cattle, known by the various names, "Hoose," parasitic Bronchitis, etc., I desire at the present time to draw attention to the great advantage, or rather the positive benefit, which, judging from some experiments I have made, seems likely to attend the use of intra-tracheal injections. In reference to intra-tracheal injections, there appeared in a recent number of the *Veterinarian* the following:—"Like many other important discoveries, the system of tracheal injections was in great measure due to an accident. It is recorded that in 1817, at the Veterinary School at Lyons, some students were directed to kill a horse by injecting water into the trachea. This was attempted, but when the Professor went to see the result he found that seven or eight pints of water had already been injected without causing any apparent derangement, and before the horse fell about thirty-two pints had been introduced. The Professor repeated the experiment on several occasions, and found that animals so treated did not suffer any inconvenience, owing to the rapid absorption of the fluid. He concluded, therefore, that the injection of medicines into the trachea might be effective in certain cases of lung disease." It is tolerably well-known that for some years direct attention has been given to this subject. Many, I believe, like myself, have been deterred from carrying it into execution from want of positive evidence of its utility. Many, I doubt

not, have been rather alarmed from an idea that the injection of such materials as were calculated to destroy the strongyli in the air-tubes would inevitably produce so much irritation in the lungs and bronchii that the treatment would prove more fatal than the disease. To give confidence to those who may be in doubt, and to bring the matter under your consideration, is my object in bringing this treatment before you. Although many have at different periods used for various ends tracheal injections, it is probably to Dr. Levi, of Pisa, that we are indebted for the latest systematic attempt of their use in the parasitic affection known as "Hoose." I am aware that several in this country have experimented to a greater or less extent in this direction, and also in some diseases of a different character in other animals, so that the previous dread of the irritation likely to arise from passing fluids into the windpipe is not now so appalling as we previously believed it to be. In the cases in which I have employed remedies through tracheal injection, I may say that fair success has attended the method, not merely in the milder cases, but also in those where the effects of the parasitic invasion were marked by extreme prostration, and where nothing save a fatal termination was likely to occur has this treatment been beneficial. The operation is extremely simple and readily carried out, the materials employed being a mixture—oil of turpentine, tincture of opium, pure carbolic acid, and water—the quantity injected on each occasion being half-an-ounce, half of which would be turpentine. The instrument I have employed is the ordinary hypodermic syringe. I first make a small incision with the knife through the skin half-way down the neck, and pass the small trocar and canula through, between two of the tracheal rings. In those cases where the symptoms were most severe, one injection was made daily for three days. Decided improvement was manifest on the day after the first injection, when the dyspnœa, previously existing, gave evidence of disappearing, and a marked improvement in the appetite was noticed. The other animals not so manifestly distressed only received one injection, which seemed to have the desired effect of arresting the cough. The following is a brief note of the results of my experiments :—I operated on eight calves affected with "Hoose," all with temperature ranging from 103 degs. to 106 degs. Fahr., and all more or less emaciated. Two of the animals showed marked prostration, were off their food, and the dyspnœa was very great. I injected into the trachea of one of the two animals most severely affected half-an-ounce of the mixture before mentioned, and ordered it to have a little new milk and gruel. I saw it the following day, and found it a little better, and taking the milk and gruel at its own will. I gave it a second injection, and on the third day found it greatly improved. The previous distress disappeared, and cough less frequent. Gave it a third injection, and saw it three days after, when it was doing well, and temperature gradually falling. I ordered it to be put out to the field for a few hours daily. All went well until about a fortnight after, when a message came that the calf was taken ill again. On my arrival I found it suffering from chest complication, probably due to the animal being too soon turned out. Seeing the animal was sinking, and anticipating a fatal result, I told the steward to send me the lungs, etc., which he did. I found them slightly congested. No trace of any inflammation was seen at the seat of the operation, but a little serum in the bronchial tubes, and a few dead strongyli. The heart was also enlarged. The second of the two I treated in much the same manner, but injected the materials into the trachea every other day instead of every day (as in the former), until three injections were given, when much the same improvement was manifested. I may say there was a good deal of irritation of the bowels from the first, which seemed to improve along with the other symptoms until a few days after the last injection, when an attack of diarrhœa set in, which proved fatal. Three of the remaining six

got three injections each, the other three one each. They all did well. I may also mention that none of the animals got any other medicine save the injection into the trachea, but had they got a little tonic and stimulant more success would probably have attended the treatment. From what I have experienced, I feel certain that many other agents may be used in a similar manner, and without much danger of inducing pulmonary inflammation. There seems little doubt that the bronchial parasite may be readily destroyed without endangering the life of the host.

The paper was discussed by Professors Williams and Walley, Messrs. W. O. Williams, A. Grey, and the Secretary.

Professor WILLIAMS said they were very much indebted to Mr. Hutton for his address. He was sure Mr. Hutton was the first to bring that method of treatment under their notice. He had considerable confidence in intra-tracheal injection, which had been tried with good results, and recommended in its use the employment of turpentine suspended in an emulsion of oil, water, and potash for Hoose.

The CHAIRMAN said that he thought any experiments in this direction should be comparative if they wished to get at the relative value of this method of treatment, and that by inhalation and injection of medicament. He asked Mr. Hutton, who replied in the negative, if he had carried out any comparative experiments. He endorsed Professor Lewis' statement in reference to the use of intra-tracheal injections by Mr. Carlisle, as that gentleman had mentioned the matter to him twelve months ago. Referring to the mixture used by Mr. Hutton, the president said he thought there would be some difficulty in preventing the turpentine from separating, and that it would be dangerous to give it in oil (except it were emulsified), as the oil globules (as is so frequently seen in choking by linseed oil) would block up the bronchioles, and prevent the passage of air. He confessed his inability to credit the statement which had been made in reference to the impunity with which fluids could be introduced into the trachea, especially when the distressing and dangerous symptoms produced by the accidental introduction of even a small quantity of fluid, in the act of drenching, was taken into consideration, and said that he would prefer to use carbolic acid dissolved in glycerine; he had, in fact, introduced into the trachea of a sheep twenty drops of the acid in the dram of glycerine, with the effect only of causing temporary irritation by coughing. He further remarked that however successful intra-tracheal injection might be in *bronchitic invasion*, it could be of no service in *pulmonary invasion*, as it could never slack the embryos in the lung tissue or those embedded in the inflammatory products, and we well knew by experience that our difficulty did not lie in the destruction of the worms in their mature condition, but in the destruction of their embryos. He endorsed Mr. Grey's assertion in reference to the resistance offered by the embryos to destructive agencies, and stated that he had seen them alive in a piece of lung which was at the time in a state of absolute putrefaction.

Mr. GREY said that it was not very easy to destroy the embryos of the strongles. He had seen them resist the action of such powerful parasiticides as arsenic, alcohol, etc.

Mr. W. B. WILLIAMS, referring to the use of oil in intra-tracheal injections, said it might be used with impunity, as proved by some experiments lately carried on in France.

Professor WILLIAMS then read the following paper on—

Parasitic Gastric Catarrh.—Gastrorrhœa Parasitica.

A disease of the fourth stomach of the sheep, caused by the presence of the nematode worm called the *Strongylus contortus.*

The following is a short history of an outbreak of disease in sheep induced by this parasite, and to which my attention was called by Mr. Connachie, V.S., Selkirk, in March of this year, 1884.

It appears that the owner of the sheep in question had placed his lambs, after weaning time, upon a very luxuriant pasture, but from the nature of the autumn of 1883, which was very wet, the grass became rank and the soil damp, notwithstanding it had been previously well drained both on the surface and under ground.

After thriving well for some time, they began to lose flesh very rapidly, and give other indications of disease; they were then removed to another pasture of good clean grass, and shortly afterwards placed on turnips, oats, and Indian corn. This change seemed to have the desired effect, as they commenced to thrive and lay on flesh; but in the month of February, 1884, when nearly fat and fit for the butcher, the now hoggets suddenly presented signs of disease. Their appetite at first became capricious; they then ceased eating their food altogether, but would devour earth or any rotten or decaying vegetable matter. From this time other and more serious symptoms soon developed themselves, such as great restlessness, lying down and suddenly rising again, pawing with the feet, and showing signs of abdominal pain. The bowels now became very irritable, and from being constipated became very loose, the evacuations being like muddy water. At this stage a most unnatural desire for water was evinced, the sheep roaming about in search of it, and when driven away from it, immediately returning to it. Along with this insatiable thirst, there was also an almost constant desire to urinate, the urine passed being as clear as water. The cough now became hacking, but intermittent, each fit of coughing continuing until the animal succeeded in ejecting a quantity of frothy mucus, which relieved it for a time only, as the fits soon returned and became more frequent; during the intervals a flow of watery saliva continued to drivel from the mouth, accompanied by a constant grinding of the teeth, and a continual twitching of the nostrils and upper lips.

During the development of the above symptoms the hoggs had most rapidly lost flesh, the adipose and muscular tissues being rapidly atrophied; the abdomen becoming greatly distended, causing the animal to present a most miserable appearance. All the above symptoms increased gradually and steadily, until death closed the scene.

After trying various remedies without success, Mr. Connachie advised the owner, Mr. Elliott, Hollybush, Galashiels, to call me into consultation.

Before seeing the sheep in consultation with Mr. Connachie, one carcase was sent to the College for examination.

In the lungs of this sheep the *Strongylus filaria* was found, but not in great numbers; the parasites were also found in the blood-vessels of the lungs, causing embolism; and in the fourth stomach the *Strongylus contortus* was found in great numbers. After this examination I visited Hollybush, and saw several sheep in an advanced stage of the disease, and, in addition to the above symptoms, furnished by Mr. Connachie, found that the majority presented aggravated symptoms of œdema of the head, affecting the nostrils and interfering with the breathing, and involving the intermaxillary space and inferior cervical region as low down as the breast.

On making a *post mortem* examination of one sheep killed for the purpose it was found that the *Strongylus filaria* was absent, but that the true stomach (abomasum) contained a quantity of a dirty-looking fluid, in which the *Strongylus contortus* could be seen wriggling in great numbers.

The parasites were so small as to be seen in the fluid with difficulty by the naked eye, but by gently moving the walls of the viscus, the whole fluid

would seem to be one seething, fermenting mass of wriggling, moving worms; while the body of the animal was very anæmic, the muscular tissue greatly wasted and very pallid, the fat fairly abundant, but presenting the very white appearance seen in Liver-rot and other anæmic diseases.

The *Strongylus contortus* has been studied in Germany by Gerlach particularly, and the following is a brief *resumé* of his conclusions.

The *Strongylus contortus* occurs in the fourth stomach of the sheep and goat, and when present in large numbers causes disease (*Magenwürmerseuche*). At the same time, as was first noticed by Gerlach, the *Strongylus filaria* is usually present in the lungs. In the summer the *Strongylus filaria* is most abundant; in autumn the *Strongylus filaria* and *Strongylus contortus* are almost equally numerous; while in winter, the *Strongylus contortus* prevails, and the *Strongylus filaria* has almost disappeared. Hence the stomach disease caused by *Strongylus contortus* breaks out in winter and spring in those lambs which have survived the lung disease of summer and autumn.

These facts agree with what was observed at Hollybush, namely,—1st, The appearance of disease early in the autumn amongst the sheep. This would be due to the lung disease caused by *Strongylus filaria*. 2nd, The recovery of many of the sheep affected when the diet was changed, *i.e.*, when removed to a clean pasture; and, 3rd, The appearance of the disease later on in the season, in February, 1884, and resulting from the *Strongylus contortus*, confirmed by the *post-mortem* examinations, in one of which only a few *Strongyli filariæ* were found.

From this connection between these worms, Gerlach was led to make the following experiments: — Eggs of *Strongylus filaria* were given to healthy goats and lambs, and four months after the feeding, *Strongylus contortus* was found to be present. From these experiments Gerlach concluded that *Strongylus contortus* could develop from the eggs of the *Strongylus filaria*, but opinions differ upon this point.

The name *Strongylus contortus* occurs first in the writings of Rudolphi, and the species was described from specimens found in the month of November in the fourth stomach of a lamb. Fabricius also found them in the intestine.

Description.—The body is cylindrical, red or white, and tapers very gradually towards the anterior extremity, where is the mouth which is unprovided with papillæ or other appendages, and leads into the muscular pharynx, rather more than 1 mm. in length, in a worm 25 mm. long.

The male is smaller than the female, and is from 10 to 16 mm. in length, and 0·2 mm. in diameter.

The terminal bursa consists of two elongated ovoid lobes, each of which is supported by five ribs, and attached to the left lobe is a smaller one, supported by two ribs. There are two spicules about 0·5 mm. in length, each one tapering to a fine point, which is slightly curved outwards. Under a high power each point is seen to be tipped by a small knob.

The female is from 18·30 mm. in length, and 0·3 mm. in diameter. The body tapers very suddenly to an extremely fine point, and about 3 mm. in front of this is the genital opening, furnished with two papillæ, of which the left is much larger than the right. The uterus is convoluted, hence the name *Contortus*.

Symptoms.—The symptoms of the stomach disease caused by the *Strongylus contortus* are, according to Gerlach, not sufficiently marked to allow of a certain diagnosis. The animals are languid and dejected, and tend to become lean and anæmic; the excrement is thin and brown, mixed with slime, or at times with blood. At last cachexia occurs, and death ensues from starvation (*Erschöpfung*). On *post-mortem* examination the fourth

stomach is found with hundreds of the *Strongylus contortus* covering its surface.

Treatment.—Good food is recommended, *e.g.*, roasted malt, seeds, lupine hay or lupine seeds, and the following medicines :—

Chabert's oil	1 part.
Oil of turpentine	3 parts.

The dose being one tea-spoonful per day.

Kamala has been recommended, and the picrate of potash is highly spoken of by Zurn.

Rabe used picrate of potash in the small dose of 0·12 grms., or about 2 grains per day for three days, and was successful in his treatment. The picrate of potash was given in thick linseed mucilage.

The doses of picrate of potash as given by Zurn are—

For a lamb 0·30 grms. or about 5 grains.
For a sheep 1·25 „ or about 20 grains.

Divided into two doses per day.

It is now believed that the ova of these parasites, passed from the body of their host, retain their vitality in damp places only, and that where nice bites of green grass, such as that growing on the sides of open drains and damp spots in pastures otherwise dry, are sources of danger, the parasitic ova becoming ingested with such grasses. The prevention of the disease by the destruction of the worms should be attempted by first digging up, where possible, all such green grasses, and inverting the sods. 2nd. By a liberal application of salt to the land, and, where possible, an allowance of it to the sheep.

During wet seasons the above precautions are impossible, and all that can be done is to remove to the driest pastures, give corn where possible, and an allowance of common salt in the food.

Professor Walley, Messrs. Connachie, R. Rutherford, and Thompson, took part in the discussion which followed the reading of the paper.

Mr. CONNACHIE spoke in corroboration of Professor Williams' description of the outbreak at Hollybush. He recommended the use of salt for the prevention of the disease, and referred to the great importance of the study of the parasites which cause disease in the domesticated animals.

Mr. RUTHERFORD said he had seen worms similar in appearance to those shown by Professor Williams in myriads in the stomachs of Australian horses. These worms were generally found inside tumours.

Mr. THOMPSON had also seen cases similar to those mentioned by Mr. Rutherford.

The CHAIRMAN said that as the discussion seemed to be exhausted, he would give them his experience of this matter, which was not, even in this country, an original inquiry. In 1881-2, and long before that date, Professor Simmonds described a parasite whose habitat was the abomasum of the sheep, and which produced all the conditions described by Professor Williams, and which he designated the *Abomesi ovis*, or *Filaria denticulata*. The following year he, the President, assisted Mr. H. Edwards, of St. Albans, in the investigation of a disease amongst the lambs grazing in Verulam Park, and which they found was due to this parasite, and since that time he had seen it not only in England but in Scotland, and had traced outbreaks of disease to it, and advised as to treatment and prevention. Not only this, but the very first year he lectured on cattle pathology, and annually since that time, he had directed the attention of the students at the Veterinary College to the parasite. This so-called *Abomesi ovis* of Simmonds was the *Strongy-*

lus contortus of helminthologists, and a good description of it was given by Davaine, whose anatomy, however, differed slightly from that given by Professor Williams. The co-existence of several different species of worms was a matter of common experience. He exhibited specimens of the *S. hypostomus*, or rigid strongylus, taken from the intestines of a sheep (where it is very commonly found), whose body was also the host of tapeworms, flukes and bronchial strongyles. Another parasite commonly found in sheep (also alluded to by Prof. Simmonds), and specimens of which he exhibited, was the *Tricothocephalus affinis*. As to the probability of transmutation of *S. contortus* and *S. filaria*, he agreed with Professor Williams that the thing was absurd, unless as was sometimes found in the case of other strongyles, that the immature forms had a different habitat than the mature parasites. In reference to treatment, he had found nothing more efficacious than salt and iron, with salt as a preventive. If dropsy or anæmia existed, treatment could not be of any avail; it was too late to apply it then. The worm mentioned by Messrs. Rutherford and Thompson as being found in tumours in the stomach of the horse is the *Spiroptera megastoma*.

Professor WILLIAMS objected to the imputation that he had laid any claim whatever to the discovery of the *Strongylus contortus*, or the disease induced by it. He was perfectly aware the worm had been described years ago, and that it was known to Professor Simmonds. In writing his paper he had endeavoured merely to give greater prominence to an important point in helminthology, concerning which veterinary surgeons, as a body, in this country had very little knowledge.

The meeting terminated with the usual votes of thanks.

T. H. LEWIS, *Hon. Secretary.*

ONTARIO VETERINARY COLLEGE.

THE opening lecture of this College for Session 1884-5 was delivered on Wednesday, October 22nd, by Professor A. Smith, V.S., Principal of the College, at which a large number of students were present.

There are at present 192 students registered. It is evident, from the large number of young men presenting themselves for education in Veterinary Science, that the veterinary profession is becoming more interesting, and making greater progress, on this Continent.

The Veterinary Medical Society, in connection with the College, meets twice a week, for the reading of essays and communications.

The first regular meeting for the session was held on Friday, October 24th, at which the following gentlemen were elected as officers:—President, Professor A. Smith, V.S.; Secretary, William Wilson, Ballymoney, Co. Antrim, Ireland; Assistant Secretaries, Henry Piatt, St. Louis, Missouri, U.S.; A. L. Hunter, Hector, New York, U.S.; Treasurer, Charles H. Pierce, Grand Rapids, Michigan, U.S.; Librarian, Llewellyn D. Williams, Pontypridd, South Wales; Assistant Librarian, George Standish, Esqueezing, Ontario.

WILLIAM WILSON, *Secretary.*

PATHOLOGICAL SOCIETY OF LONDON.

Uterine and Ovarian Disease in Animals.

AT the meeting of the above Society held on the 18th November, Mr. J. BLAND SUTTON read a paper on Uterine and Ovarian Disease in Amphibia, Aves, and Mammalia. He exhibited a series of specimens which served to show that flexions of the uterus are not confined to the human race. The first was an example of retroflexion in a macaque monkey; the second specimen showed acute anteflexion in a bonnet monkey; the third, acute lateral flexion of the uterus to the right side, also in a monkey. In the last two specimens, the pelvis was considerably distorted, as a result of Rickets. Two other specimens, illustrating anteflexion of the uterus, were taken from deer: one from a hyomoschus, which had, a short time previous to its death, given birth to a young one; the other from a molucca deer. The pressure of the anteflexed fundus in the last case had caused atrophy of the anterior wall of the uterus. The uterus of a kangaroo was shown, in which both Fallopian tubes had become greatly distended on account of the accumulation of caseous material in their interior, due to some obstruction of their openings into the uterine cavity. Some of the contents of the tubes had probably leaked into the peritoneal cavity, and had given rise to fatal Peritonitis. Mr. Sutton stated that Ovarian disease was not uncommon in animals born in confinement, but seemed to be very rare in "wild animals." He observed that it had long been shown that some cysts in the broad ligament frequently arose from abnormal distension of the tubules forming the "organ of Rosenmüller" (the parovarium). He had made an investigation with a view to determine how far the notion of cystic dilatation of tubules having no functions held good. The results, briefly stated, were that male toads possess the remains of Müller's ducts in a well-marked degree; and it was no uncommon thing to find these ducts, which in the male toad had no function, dilated in their lower third into cysts, some very small indeed, but others of considerable size, and affording indisputable testimony to the origin of cysts from pre-existing ducts. About 250 frogs and toads were examined to test the point, and about ten well-marked examples of the cyst were found; they were, as a rule, arranged symmetrically. In birds, as in frogs and toads, upon the Müllerian ducts devolved the duty of conveying the ova from the abdomen to the outer world. In the embryo chick there were normally two oviducts; but the left duct alone persisted, whilst the right one usually disappeared, though now and then a small rudiment of the lower end, from a quarter of an inch to an inch long, remained attached to the cloaca. It might become the seat of cystic change, and in some cases assumed considerable proportions. The occurrence of these cysts was by no means unfrequent; and their presence was injurious, for a cyst might become detached, and set up fatal Peritonitis. A curious fact, first pointed out by Hunter, was occasionally noticed; a hen bird would lay aside the sober plumage of her sex, and take on that of the cock. This fact had been attested by several naturalists of eminence; and Mr. Sutton exhibited a drawing of a hen golden pheasant now living in the Zoological Society's Gardens. Two years ago she assumed the resplendent dress of the male bird, the only difference being that there was no white rim to the pupil, and no spurs. She lived quite happily with her mate, and they did not fight. This singular change was always associated with disease of the ovaries or the oviduct. In mares, cysts in the mesosalpinx were so frequently found that in fifty old mares, taken at random, two-thirds possessed cystic ovaries, the cysts varying in size from a grape to an orange, and in number from three or four to a dozen. Careful examination of these cysts had convinced him that they arose by dilatation of the tubules of the

parovarium, brought about by the increased blood-supply to the ovary in old age, due to the dilatation of the ovarian veins, much as was seen in the prostate of men advanced in life. Among other animals, he had met with cystic ovaries in a tiger that was born in this country and lived in confinement for twelve years. The cysts were small, numerous, and pedunculated, resembling the incipient cysts so frequently seen about the ovary and Fallopian tubes in virgins. Cystic tumours were also shown from a cat, a goat, and a tree-porcupine. He had brought the facts before the Society, not as mere curiosities of disease occurring in animals, nor as interesting in that they illustrated truths which might *à priori* have been anticipated, but because they demonstrated, unquestionably, that there was a strong tendency for ducts having no function to dilate into cysts.

Mr. ALBAN DORAN observed that in the human female atrophy or removal of both ovaries was not invariably followed by loss of the attributes of femininity. In examining the hypertrophied broad ligament attached to ovarian tumours he had observed that large or small thin-walled cysts were often developed between the layers of the broad ligament far from the parovarium and even above the Fallopian tube. Yet such cysts were certainly developed, in other cases, from the extremity of the horizontal duct of the parovarium. Cysts of the vertical tubes of that structure of the hilum of the ovary and of Gärtner's duct always appeared to contain papillomatous growths. There was no doubt that the parovarium existed in woman as a part of the Wolffian body, that Gärtner's duct was generally persistent though impervious, and that the duct ran into the walls of the uterus, passing through the cervix, and then entering the cellular tissue of the vagina, where it ended in a blind extremity. Sometimes it made a turn on itself and ended in the same manner in the cervix, not reaching the vagina; this variation depended upon the extent to which the lower part of the fused Müllerian ducts developed into uterine, at the expense of vaginal structures. The pair of tubes in the walls of the human female urethra lead to ducts, and have probably nothing to do with Gärtner's ducts. These "Skene's tubes" were subject to catarrhal affections.

Dr. DAWTREY DREWITT referred to the acquisition of male characteristics by female birds in whom there was disease of the ovaries or oviducts.

Mr. FREDERICK EVE spoke of large tumours formed at the expense of persistent Müllerian ducts. The hydatid of Morgagni about the epididymis was generally believed to be the dilated upper extremity of Müller's duct. Many encysted hydroceles of the testicle were derived from the organ of Giraldès.

Mr. SUTTON, in reply, said the cysts contained clear coagulable fluid, but no papillomata. The remains of the Wolffian bodies in the hilum of the ovary might be the source of origin of papillomatous growths. Gärtner's duct might develop a cystic growth about its termination near the vagina.

PROCEEDINGS OF THE SECOND GENERAL MEETING OF THE NATIONAL VETERINARY ASSOCIATION.

(*Continued from page* 378, *vol. xix.*)

England is now the centre of attention, from the fact that this country is endeavouring, by legislative measures, to suppress maladies which have been the scourge of the civilised world. Lectures have been delivered, papers read, and searching discussions entered into upon many great and important matters bearing upon diseases of domestic animals. They have been the means of bringing out ennobling and elevating thoughts, eliciting and developing a vast amount of light upon disease and the laws of its propaga-

tion ; and it must follow that our country will derive substantial and solid advantages. We cannot afford to lose opportunities such as these in making our profession more and more useful and valuable to society. The whole profession is watching with a great deal of interest the proceedings of this Association. We are all adult men, experienced in the needs of life ; we know the value of the knowledge of employing instruments as delicate, and manipulating them with a precision as dexterous as in the highest walks in our sister profession. It is true, there are some great men in our profession, who have laboured unintermittently for years, who have luxuriated in doing good, whose greatness is far too little known and honoured ; who have devoted, and are devoting their valuable lives, and still more valuable talent to the patient analyses of the causes of some of the more obscure diseases in animals, with the object of discovering the most sure and merciful method of alleviating their sufferings, as well as the most simple and efficacious methods which can be taken to remove the curse of the various epizootic and enzootic diseases. Some of these men have assented with the most ready and cheerful acquiescence, to help on this great and good work by writing these excellent papers, and joining in the discussions which are now to take place.

The detection of an error, the establishment of a fact, the determination of a doubtful principle in the nature of disease, may spread its benefits over large portions of the human race, and be the means of increasing the happiness of unborn generations. Whether it is recognised by scientific men or not, domestic medicine, as applied to animals, is an institution which cannot be abolished; it is essential also that we should fully ascertain, and fully understand this undoubted truth, viz., that the animal organism possesses in itself a most wonderful power of reparation. This is accepted as a fact beyond all question by men of the highest scientific attainments, that there may be a subsidence of disease naturally, and that wounds may heal naturally in a healthy state of the system, without the aid of medicine. The process cannot always be accelerated by man's help, though it may (and we must never overlook this great truth) sometimes be easily retarded.

The discussion will now take place upon the four great and important subjects which have been selected by your Committee, and written upon by some of the most eminent men in our profession ; such papers, having been printed and distributed amongst the members, will be taken as read. I would observe here, that it is my wish, and also the wish of your Committee and Council, that the discussion, whilst it shall be full, thorough, and searching, shall be conducted in an amicable and kindly spirit, and that each member will, individually, observe that our rules preclude too long a speech on any of the subjects.

MAJOR SUBJECT I.

PUBLIC HEALTH AS AFFECTED BY FOOD SUPPLY OBTAINED FROM ANIMALS.

BY JAMES MC CALL, F.R.C.V.S, PRINCIPAL OF THE GLASGOW VETERINARY COLLEGE.

It is generally admitted that food, air, and water are the most important elements in the maintenance of health, and under adverse conditions it must be conceded that they are frequently important factors in the production of disease.

To enter into details, and to point out how the bodily organism of man is affected, or supposed to be affected, by the animal food of which he partakes,

would be an exercise far beyond the time at my disposal; so that I shall restrict my remarks to a brief consideration of a few of the more important diseases which render the flesh of cattle, sheep, and pigs, in certain stages at least, unfit for human consumption, and prejudicial to public health.

Trichina Disease in Man.

The discovery of this disease as a *post-mortem* lesion—"white, stony concretions in the muscles"—is generally ascribed to Tiedmann, in 1822, but it was not until 1835 that Paget and Owen demonstrated the parasitic nature of the malady. In its fully-developed and sexually mature state the male "Trichina spiralis" measures $\frac{1}{18}$ of an inch, and the female $\frac{1}{8}$ of an inch in length. They inhabit the intestinal canal of numerous warm-blooded animals in great numbers, and on the second day after their introduction attain their full sexual maturity. In six days the female parasite will contain perfectly developed and free embryos in the interior, numbering from ten to fifteen thousand, and these, on attaining full size, are born. Soon after birth they bore their way through the walls of the intestines, and then through the walls of the abdomen, and finally locate themselves in the interior of the muscles, and here, after fourteen days, acquire the size and organisation of the well-known Trichina spiralis (Leuckart).

"As commonly observed in the human body, our young trichinæ appear as spirally-coiled worms in the interior of small globular, oval, or lemon-shaped cysts, which latter appear as minute specks scarcely visible to the naked eye. These specks resemble little particles of lime, being more or less calcareous according to the degree of degeneration which their walls have undergone. The eggs measure on an average $\frac{1}{7}$ of an inch in length by $\frac{1}{130}$ of an inch in breadth. The capsuled trichinæ measure $\frac{1}{25}$ of an inch in length by about $\frac{1}{80}$ of an inch in breadth" (Cobbold).

In Germany, and some other Continental countries, owing to the inhabitants partaking of raw flesh as sausage-meat and other imperfectly cooked forms, the disease to which this parasite gives rise is not infrequent, and indeed, on the authority of Rapprecht, thirty-one epidemics occurred in various towns in Germany during the first six years following the discovery of the parasite.

The pig is, of all domestic animals, most frequently affected with trichinæ, and the ingestion of the flesh of this animal by man, in a *raw or imperfectly cooked* condition, is certain to give rise to Trichinosis, and the flesh of the human subject has been used by numerous experimentalists to propagate the disease to cats, dogs, rabbits, pigeons, swine, cattle, and sheep.

In this country the outbreaks of Trichinosis have been few as compared with the number on the Continent, and no doubt this is mainly due to the fact that we, as a nation, do not eat largely of raw or imperfectly cooked flesh.

Notwithstanding this, however, all acquainted with the malady subscribe to the opinion that not a few persons succumb to this affection, and the cause of death is ascribed to other diseases, more especially Enteric Fever and Rheumatism. "Virchow had not seen a case before 1859, after which he met with no less than six in one year." The disease is either on the increase or greater attention is being paid to the subject, as cases of Trichinosis are now being frequently recorded in the medical and veterinary journals. During the past year considerable anxiety has been expressed as to the prevalence of Trichina spiralis in American swine, and apparently not without good reason, for in the July number of the New York *Journal of Comparative Medicine and Surgery*, for 1883, Mr. F. S. Billings, veterinary surgeon of that city, is reported to have made an examination of the carcases of 8,773 hogs, and to have found one in every twenty-five to be infested with

trichinæ. In the month of September last, in the little town of Emersleben, a trichinous pig was slaughtered, and, according to the universal custom in Saxony, nearly the whole of the flesh was eaten in a raw state as mince-meat. Of the persons partaking of the flesh, 361 were seriously ill, and fifty-seven died of Trichiniasis. According to the State enactment, this carcase, like that of all other pigs, should have passed official examination, but it did not (*Practitioner*, February, 1884).

Regarding the vitality of the parasite, Colin states that in his experiments he found trichinæ which had been encysted in the muscles of an animal for four years, as lively as if they had only been a few days old.

From experiments also recorded, it appears that this parasite has the power to resist drying, putrefaction of the flesh, maceration, lowering of temperature almost to freezing, and elevating almost to boiling.

As previously stated, the symptoms of Trichiniasis in mankind simulate Enteric Fever and Rheumatism, and as these diseases are not uncommon in this country, and as American bacon is an article of almost daily diet in many households, may it not be that some of the cases recorded as Enteric Fever and Rheumatism are really Trichiniasis?

Be this as it may, it is evident that American and German pork—and for that part of it, pork from any country—is not a safe article of diet unless it is thoroughly roasted or boiled, and even when so cooked, if it be infested with trichinæ, it is unfit for human food, or for consumption by any animal.

Cysticercus Cellulosus.

The presence of this hydatid parasite gives rise to that disease in pigs generally called "Measles," but a more inappropriate term could not be conceived, as it bears no resemblance to the disease "Measles" in the human subject, there being neither red spots nor cutaneous eruptions on the body. This disease can be propagated from the human subject to the pig, or from the pig to the individual, with great facility.

The human body not infrequently, as is well known, is the habitat of tapeworms, and especially that form or class, "Tænia solium." These tapeworms in large numbers occupy the intestine, and the segments are regularly and almost daily voided in the fæces, and if pigs are allowed access to human excrement, as is well known, they will devour it; and where pigs are allowed to roam at large, as in Ireland, and consume all kinds of garbage, they can scarcely escape playing the host to this parasite. In this way the segments of the human tapeworm may gain the bowel of the pig. Within the alimentary canal the segments burst, and the embryos are liberated from the ovum. The free embryo "proscolex" now commences to migrate, and bore its way, by the aid of its three pairs of spikelets, through the tissues, piercing the walls of the intestines, then the tissues of solid organs and muscles. It also penetrates the walls of the blood-vessels, and in this way, also, may gain remote parts through the blood stream. Having reached its destination in the muscles or other organs, it assumes the hydatid or bladder form, and there remains permanently fixed, undergoing no higher form of development unless partaken of as food by another animal, and should that animal be man, it will, in his bowels, be developed into the mature and fully-developed Tænia solium. Leuckart is of opinion that the average period of existence of a tapeworm is two years, and that it grows not less than 1,600 segments (proglottides), each containing 53,000 eggs.

The so-called "Measles" of the pig is a disease not by any means exceptional; but I do not think that it is on the increase—pigs being brought up with greater care and cleanliness—still, salted specimens for sale in provision shops are not difficult to find even in towns where meat Inspectors hold office.

In the living pig a diagnosis in a great many instances at any stage of the affection cannot with authority be pronounced, and in the early stage of the disease it is impossible. A pig may be infested with cysticerci, and yet fat, and apparently in the best of health. A careful examination of the mucous membrane of the mouth, especially along the sides and frænum of the tongue, the inside of the eyelids and anus, may disclose the presence of the little cysts or bladders; but if not, unless Kuhne's flesh harpoon and the microscope clear the way, we cannot detect a "measly" pig during life.

The muscles most frequently infested by the cysticerci are those of the tongue, neck, shoulders, loins, and thighs; but any and all the muscles and organs of the body may be invaded. The flesh is paler than normal, and between its fibres the cysticerci can be seen and recognised by their white colour. "Their friability, crunching under the teeth, owing to the calcareous matter they contain. When this flesh is being roasted or fried it emits a crackling sound, due to the bursting of the cysts, and it gives the same gritty sensation between the teeth as when boiled." The flesh of a "measly" pig is clearly unfit for human food, and unless boiled or cooked to destruction of the flesh, it ought not to be given to a dog.

Rinderpest, or Cattle Plague.

This disease is neither communicable from cattle to the human subject, nor from the human subject to cattle. It is undoubtedly dependent upon a specific organism or microbe, and this specific organism has no existence in this country, or if it has, it is not possessed of sufficient vitality to propagate itself. Dr. Smart, of Edinburgh, in his little work recently published, and entitled, "Germs, Dust, and Disease," in the preface "takes opportunity of claiming priority in the discovery of micro-organisms in living tissues." His delineation (of which a drawing is given) of the "Rinderpest" germ was published in 1865, the next earliest being that of the "spirillum" of Relapsing Fever by Obermeier. In 1872 Klebs discovered micrococci in the lymphatic glands, and Semmer, 1874, also discovered micrococci in the blood and lymphatic glands. Semmer has cultivated the micrococci, and he alleges that the cultures modify the disease, but further experiments are required before the specific nature of the micrococci can be considered as determined. The microbe exists in, and apparently is indigenous to, the steppes of Russia; but in this country it has no existence, and can only reach our shores by the importation of affected animals. The regulations under which cattle from foreign countries now enter these kingdoms are so stringent, that it is scarcely possible for Cattle Plague to be again introduced; and even if it were, the machinery for its extinction is such that it would undoubtedly be stamped out at once. But the question still remains to be answered: Is the flesh of an animal affected with Cattle Plague fit for human food? From the *Veterinary Review* of 1865, page 557, I transcribe the following:—"It appears that in some instances Inspectors allow those animals which are only slightly affected to be sold for human food, while those in the more advanced stages of the disease are buried as speedily as possible. A correspondent of the *Glasgow Herald*, taking notice of this, *properly remarks* that every Inspector ought to know that before any symptoms or external indication of any disease can become apparent on an animal, the blood or some internal organ is more or less charged or assailed by some aerial or other impalpable or invisible poison, possibly animalculæ or other cryptical formation, inhaled or generated, *which must cause both the flesh and milk of the animal to be poisonous.*

"And we observe that Mons. Chauveau, Professor of Anatomy in the Imperial Veterinary College, Lyons, who is at present officially employed investigating the nature of the Cattle Plague in this country, expressed when

in Glasgow, his decided disapproval of making use of animals slightly affected with the disease as human food, adding that the French Government would not allow a single pound of meat to be sold for such a purpose."

The preceding is but a sample of the many strictures aimed at myself and other Inspectors who chose to act, not from sentiment, but from a sense of duty. When Cattle Plague, in 1865, appeared in Glasgow, the whole duties connected with the working of the Act, including the slaughter and disposal of the carcases of affected animals, were intrusted to me. A power involving the pecuniary interests and welfare of thousands, and the health of tens of thousands, could neither be exercised in an arbitrary or sentimental manner without doing incalculable harm and injustice to the country. A sanatorium was instantly erected, experiments of various kinds undertaken, and among others, to test the effect of feeding animals upon the flesh of cattle slaughtered or dying of the plague. Suffice to say that in not a single instance did illness follow the consumption of the flesh—dogs, pigs, and cats, living almost exclusively upon the flesh, increased in weight, and enjoyed perfect health. The flesh of cattle which had recently contracted the disease, and on that account had been slaughtered, was then partaken of by myself, assistants, and others, and with no bad effects. A limited number of the carcases of the animals slightly affected before being slaughtered were then handed to the butchers, and as neither complaints nor bad effects followed their distribution, the practice was extended and continued until Rinderpest was finally stamped out in this country. Thousands of carcases of plague-stricken cattle were consumed by the inhabitants of Glasgow and the West of Scotland. Flesh meat was within the reach of the poorest of the poor, the health of the community was good, no epidemic prevailed, and the mortality was less than usual.

Now, one sentence in regard to Professor Chauveau and the French Government. Shortly after the termination of the Franco-German War and the siege of Paris, I had occasion to visit that city on a professional tour. The subject of the siege, the privations to which the inhabitants had been subjected, the fearful mortality in cattle from Rinderpest, and kindred topics, engrossed the attention, and were the subjects of universal comment. One gentleman publicly stated in my hearing that he had been reduced by starvation to the condition that he could eat with relish almost anything except a grey-faced rat. In course of conversation I also learned that the cattle affected with Rinderpest were not slaughtered, but allowed to die on the Boulevards—the universal feeling being that it was certain death to partake of their flesh. Feeling sorry and vexed that so much valuable food should have been wasted at a time when it was of such value, I informed the company how the authorities of Glasgow had dealt with Cattle Plague carcases, and their reply was that, if a similar practice had been adopted in Paris during the siege, hundreds of persons would have been alive to-day that were in their graves.

In the early stage of Rinderpest, if the animal is bled to death, and the carcase properly dressed, the flesh is not only fit for human food, but it will defy an expert, by any method of investigation, to detect the slightest trace of diseased action. The blood and all the internal organs have always been confiscated by me, and not allowed to pass into consumption.

The recent "Medical Reports," Chinese Customs' Service, 1884, fully bear out the view as to the wholesomeness of the flesh. As the Chinese have not nice ideas of feeding, probably every case was eaten.

Foot-and-mouth Disease.

This disease is also dependent on a specific organism or microbe, and this microbe is contained in the vesicles which form on various parts of the

body, especially on the mucous membrane of the mouth and alimentary canal, and on the fine portions of the skin of the teats and digits.

The microbe is also contained in the salivary and other glandular secretions, and is communicable, by inoculation or ingestion, to man, but not by inhalation. In this it differs in its communicability to cattle, as the disease spreads in these principally by inhalation. Ingestion of the flesh has never, to my knowledge, produced the disease in the human subject; but it has been otherwise with the milk. I have given the milk of an affected cow, but on whose teats there were no vesicles, to young animals to drink, and have drank it myself without bad effects; and I have seen bad effects following the administration of the milk when there were vesicles on the teats, so that I incline to the opinion that the milk of a murrainous cow is innocuous unless contaminated by the microbes in the effusion contained in the eruptions somewhere on or within the teats. In disposing of the bodies of animals slaughtered while affected with this disease, my practice is to pass the carcase, and to condemn as unfit for human food the udder and feet, and the whole of the mucous tract extending from the mouth to the anus.

Dr. Vacher, Medical Officer of Health, Birkenhead, in a paper read at the annual meeting of the British Medical Association in Worcestershire, in 1882, on the Transmission of Disease by Food, and writing of Foot-and-mouth, and the transmission of the disease to the human subject by eating the flesh, says:—"I do not call to mind a case in which the appearance of the disease in a human subject has been traced to ingested meat, while many have been traced to milk. This cannot be owing to there being much scruple about using the flesh of affected animals as food, and the simple explanation seems to be, that while the flesh is usually well cooked, the milk is ingested raw. There is no reason to doubt that the specific contagion is contained in the vesicles which characterise the disease, and that this specific contagion, unless sterilised by heat or otherwise, is capable of conveying to man the disease of which it is the seed. In districts where it is the rule to pass carcases affected with this disease, it is quite usual for the meat Inspector to retain the head and feet, and any parts marked with the eruption—as the udder, and portions of the intestines. Then the whole of the skin is, of course, removed, and the surface of the carcase, to which some have thought there is a determination of the mature contagion, is the very part which, either in boiling or roasting, would be subjected to the highest temperature. Milk, on the contrary, is directly contaminated. Large vesicles form on the udder, and even on the teats, which it is scarcely possible to avoid rupturing in the process of milking, and the contents are discharged into the milk-pail. The mixture of milk and virus is imbibed raw, and within a few hours of its being drawn. If it were the custom to eat meat nearly raw, and usual to eat the head and feet of animals affected with this epizootic, doubtless there would be instances of the disease being communicated by meat as well as milk."

(To be continued.)

Army Veterinary Department.

Gazette, November 25th, 1884.

Veterinary Surgeon on Probation Frank Joslen, to be Veterinary Surgeon, dated 9th May, 1884.

Gazette, December 2nd.

Veterinary Surgeon, First Class, Mr. Burt, to have the local rank of Inspecting Veterinary Surgeon whilst employed as Senior Veterinary Surgeon with the Force on the Nile.

Gazette, December 9th.

The following gentlemen to be Veterinary Surgeons on probation :—Patrick William Dundon, George Curran Orr Fowler, John Alfred Meredith.

We omitted to mention. when enumerating the Veterinary Officers accompanying the Expedition to Khartoum, in last month's JOURNAL, the name of C. Phillips.

Obituary.

We regret to have to report the death of William Stephenson, M.R.C.V.S., of Pickering, Yorkshire, who died on October 24th. He graduated in 1849.

The death is announced, at the age of sixty-two years, of Dr. Augustus Voelcker, F.R.S., Consulting Chemist to the Royal Agricultural Society, and one of the most distinguished agricultural chemists in this, or perhaps any other, country. For many years he was a member of the Examining Board, in London, of the Royal College of Veterinary Surgeons, and won most favourable opinions for his tact and judgment.

Professor Dr. Papio, of the Madrid Military Veterinary School, died recently, from the injuries received in a railway accident.

Notes and News.

MEDICINE IN ENGLAND IN THE SIXTEENTH CENTURY.—The position of human medicine was not very exalted at this time, if we may accept as evidence the description the preamble to an Act of Henry VIII. gives us of the condition of the medical profession in those days. "Forasmuch," the recital runs, "as the science and cunning of physic and surgery (to the perfect knowledge whereof be requisite both great learning and ripe experience) is daily within this realm exercised by a great multitude of ignorant persons, of whom the greater part have no insight in the same, nor in any other kind of learning; some also can no letters on the book so far forth that common artificers, as smiths, weavers, and women, boldly and accustomably take upon themselves great cures and things of great difficulty, in which they partly use sorcery and witchcraft, partly apply such medicine unto the disease as be very noious and nothing metely therefor, to the high displeasure of God, great infamy to the faculty, and the grievous hurt, damage, and destruction of many of the king's liege people, most especially of them that cannot discern the uncunning from cunning." The comprehensive remedy provided for this state of things, was that no one should practise as physician or surgeon in London, unless he had been examined by the Bishop of London or Dean of St. Paul's, or, outside London, by the Bishop, or Vicar-General of his diocese.

VETERINARY SCIENCE IN EAST AFRICA.—Amongst the Bedouins or Somals, firing and clarified butter are the farrier's panaceas. Camels are cured by sheep's head broth, asses by chopping one ear, mules by cutting off the tail, and horses by ghee or a drench of melted fat."—*Burton*, "*First Footsteps in East Africa*," p. 182.

METHOD OF PRESERVING ANATOMICAL PREPARATIONS AND WHOLE BODIES.—Dr. Hotz states, in a recent number of the *Chicago Medical Journal*, that Dr. Wickersheimer, prosector in the Anatomical Institute at the University of Berlin, has invented a new preserving fluid, by means of which it is possible to preserve any organic bodies, either plants or animals, so perfectly that they retain their original form, colour, and texture. The inventor at first secured a patent for his invention, but in the interest of science he relinquished it. The fluid in question is thus prepared: 100

grains of alum, 25 gains of cooking salt, 12 grains of saltpetre, 60 grains of potash, and 10 grains of arsenious acid, are dissolved in 3000 parts of boiling water. The solution is cooled and filtered. To every 10 litres of this neutral, colourless, and odourless fluid there are added 4 litres of glycerine and 1 litre of methyl-alcohol. For dry preservation the preparations are immersed in the fluid from six to twelve days, according to their size, and then dried in the air. Organs like the lungs and intestines are filled with the fluid before immersion, and blown up before drying. Small animals and portions of bodies which are to be preserved in their natural colours are simply kept immersed in the fluid. For embalming, the body is injected and laid in the fluid for several days. It is then taken out, rubbed off, and dried and wrapped in linen or oil-cloth saturated with the fluid, and encased in air-tight receptacles. If bodies are to be temporarily embalmed for scientific purposes, the injection of 1½ litres (for children) to 5 litres (for adults) is sufficient. Even after years the cut surface of the muscles shows the appearance of those of a fresh corpse. Bodies treated in this way have not the least odour.

THE RABBIT PLAGUE OF AUSTRALIA.—Consul-General Spencer, of Melbourne, referring to the multiplication of rabbits in the Colonies, which has become a veritable plague, states that from a single pair introduced for the amusement of sportsmen there are now millions. In some instances, squatters have been compelled to relinquish their sheep runs, and to abandon their holdings. The advance of the rabbit is as noiseless and persistent as that of the dreaded phylloxera. Crossing rivers and mountain ranges, they are steadily penetrating into the interior, and it is to be feared that before long they will probably be found in every part of the Colonies, occasioning heavy losses to the agriculturist and grazier, and involving expenditure for their partial suppression that will amount to millions sterling. To exterminate the pest, all the known appliances of modern science have been brought to bear, with the result, in some localities, of only checking its steady advance. Traps, poison, fire-arms, deadly gases, the dog, the dingo, and the mongoose have been brought into requisition, but hitherto with only partial or indifferent success. Government aid has been invoked, and the Parliaments of Victoria, South Australia, and New South Wales have already voted nearly £210,000 for the extirpation of the plague, and in all probability will have to expend many thousands more, even to keep it within moderate bounds. When to this sum is added the expenditure of private individuals in the colonies named, as well as Tasmania and New Zealand, it will be seen that the outlay, both past and prospective, is enormous. According to the report of the Chief Inspector of Stock in New South Wales, no less than 700,000 acres in that colony are infested with rabbits. On 27 sheep runs they are said to be increasing; and decreasing on 36 stations and 44 sheep runs. About 115 men, under the supervision of inspectors, have latterly been employed in trapping and poisoning, and they are stated to have destroyed immense numbers. Of the various means employed in exterminating the rabbits, the most efficient are trapping and poisoning, phosphorised oats and sulphide of carbon having been found especially effective. Latterly, some specimens of the mongoose have been imported from Colombo, and after being kept in confinement for some time, were turned out on some large estates in those districts in Victoria and New South Wales where the rabbits are most numerous, and it is stated that the result of the experiment has been most favourable. Consul Spencer says that one result of this plague of rabbits has been to open up new channels of trade, and develop new industries. From Victoria alone, during the year 1882, 4,929,432 rabbit skins were exported; and from New Zealand, 9,198,837, of the aggregate value of £132,000.

Correspondence.

THE ROYAL COLLEGE OF VETERINARY SURGEONS AND ITS EXAMINING BOARD.

SIR,—I observe, with much regret, the attacks made upon our Corporation and its Examining Board in the introductory addresses recently delivered at the Glasgow and the Edinburgh New Veterinary Colleges ; and as I have been solicited, owing to my position as Chairman of the Board, and lately as President of the Royal College for four consecutive years, embracing a most important period of its history, to notice these attacks, I venture to do so as briefly as possible. And here let me express my entire concurrence with those who think that such attacks as these should not be made in a students' class-room, entirely unsuited, as they are, to such an audience, and eminently pernicious, as they must be, in their effect upon young men who aspire to become members of the Royal College. At the best the statements made before them are *ex parte ;* there is no one present to correct or refute them, and the students, for lack of better knowledge, will probably accept them as truthful. When such statements are made with the view to prejudice students' minds against the Royal College and the Examining Board, and to show that these are unreasonable and unjust, it must be confessed that a sure foundation is laid for future trouble. In so poisoning the students' minds, the teachers who thus act are sowing the wind, for the profession hereafter to reap the whirlwind. From every point of view the introduction of such pernicious stuff, which can do no possible good, is to be regretted and reprobated. In the Edinburgh school the speaker is the lecturer on a very minor subject—chemistry, who could have no knowledge of the political portion of his address, that is, the object and aims of the Royal College, and the final examination for the diploma ; in fact, he must have been made a mere cat's-paw of, and provided with information derived from a very unreliable source. Students should know that the Royal College of Veterinary Surgeons and the examiners are their best friends ; that they are endeavouring to prevent them being thrown on the world to practise a profession with only a very imperfect amount of professional knowledge, and to see that justice is done to them in this respect. Nothing can be more cruel to students, damaging to the profession, or injurious to the public, than to launch incompetent men on a sea where shipwreck is certain to speedily befal them. In all that the Royal College has done, especially during the four years of my office as President, it has been actuated by an honest and earnest desire to benefit students, the profession, and the public, by raising the standard of education—general and professional—hitherto miserably low and incomplete, and it has not attempted to do this by any extraordinary or revolutionary methods. In no country in Europe, not even in the poorest State, has veterinary medicine been so degraded through lack of attention to its general and educational requirements, as in our own. We are almost daily reminded of this fact, and have to blush in acknowledging it. The very reason for the existence of the Royal College is to be found in the direction of improvement ; and it is deeply to be deplored, that whenever this is attempted strenuous opposition should be offered by those who ought to be the first to assist. The unfortunate position of the teaching schools, in their having to maintain their existence under difficult circumstances, must be admitted, but that can be no reason why the entire body of the profession, and still more the great public interests which are at stake, should be sacrificed that these schools may live after a certain fashion. The Royal College is spoken of in the lectures referred to, as if it were the implacable enemy of the schools and the students. This is wrong. Its

existence depends solely upon the number of students admitted into the profession, and in this way it has as great an interest in the increase of these admissions as the schools have in securing full benches. But it takes a much higher view of its duties than to be influenced by mere pecuniary considerations. It is not only the guardian and representative of the entire profession and the protector of the student, but it is also responsible to the public that none but those who are qualified to practise Veterinary Medicine and Surgery shall receive its Diploma. To allow the names of men who are not sufficiently skilled to appear on its register, would constitute a grave blunder—indeed, a fraud upon the public. Seeing that veterinary education is so notoriously defective, through the absence of facilities for imparting it at the schools, the Royal College was in duty bound to repair that deficiency in the only way in which it could be remedied; and in order to do this, it sought power in a Charter. The obtainment of this Charter was opposed by three influential Corporations in Scotland, instigated, it is presumed, by the Principals of the three Scotch schools, and the result was adverse to the Royal College. Those who were present at the last annual meeting will, perhaps, remember, that two of these Principals denied this, but the third had not the temerity to do so. Proof of it, however, is afforded in the Glasgow Introductory Lecture, in which the Principal exults in having, with his two colleagues, defeated the Royal College through the instrumentality of the Scotch Corporations. To any one who knows the real state of affairs with regard to practical knowledge, such exultation must appear strange; nothing can be more patent than that the students are very imperfectly trained in the practical and most essential details of their profession. No matter how the teachers may strive, they have not the means or opportunities for imparting it, and it can only be obtained either at the expense of the public and professional reputation after the student has graduated, or by serving a period of pupilage away from college. Apprenticeship was the rule in the medical profession before the medical schools were annexed to the hospitals and infirmaries; but the splendid opportunities which these latter now afford for the practical training of medical students obviates the necessity for apprenticeship. Our schools have no such facilities, and yet our profession is more difficult to practise, so far as manual dexterity and skill are concerned, than that of human medicine and surgery. The veterinary schools admit youths fresh from school, or who have failed in other undertakings very different to veterinary surgery, some of them, it is to be feared, without even a decent knowledge of the three R's, lecture to them, show them as much as they can, and then send them up for examination. What can be expected?

And now as to the examiners. Abuse and obloquy have been plentifully showered upon them by those teachers who have been annoyed at the rejection of students who were incompetent to pass their examinations, and especially in the final, at which the number of rejections, as might be expected from the absence of practical knowledge, have been heavy. Among the bitter things said of them, is the story told by a Principal, that the examiners reject students in order that they may obtain fees by examining them again. Such an untruthful statement needs only to be mentioned to be dismissed with scorn. Another is that they have "fads." Well, I suppose most men have "fads," and if the examiners have their share, so have at least some of the Principals, the chief of whose "fads" I need not allude to. It only needs two or more Principals to appear on opposite sides in a Court of law to find out how hopelessly they differ on matters of fact and in opinion, and how numerous and marked are their "fads." This only proves that they are mortal, like other men. Then it has been said that the examiners are prejudiced against the students, that their method of examining is unfair, or

too severe, that they are incompetent, or that they expect too much. None of these accusations will bear examination. I exclude myself entirely from consideration in the discussion of this point, though I am now the senior member of the Examining Board, and have examined on at least four subjects. I may say that, however, during the many years in which I have acted, my sympathies have been largely, if not altogether, with the students, and I cannot reproach myself with having acted unfairly or unreasonably towards them. As chairman of the Examining Board, I would desire to bear testimony to the zeal and conscientious care with which they endeavour to discharge their difficult and ungrateful task. Their abilities no one can justly call in question, and I am confident, by what I see and hear, that no student is rejected without due and anxious consideration of his merits or demerits. If there is anything for which they might be blamed, it will be on the score of leniency. Many of the examiners have been teachers, some of them have shown their enthusiasm by studying in the schools of Germany and France, and two of them have had the great advantage of acquiring knowledge of practical histology and experimental pathology, while others are most successful and accomplished practitioners. I do not believe that a single student who is competent to pass is ever rejected, and the examinations, so far from being severe, are, in my opinion, far too elementary and easy; indeed, the present requirements of the Royal College of Veterinary Surgeons are much below what they should be, in order to insure that holders of the diploma will be what that document represents them. The examiners must perform their threefold duty faithfully and scrupulously, for on them, and through them on the Royal College, will rest the blame of admitting unskilful men to the ranks of the profession; and those teachers who now so loudly and strongly cast reflections on the Royal College, would be first and foremost in repudiating responsibility for incompetency. As evidence of the quality of many of the students who come up for the final examination, I may mention what happened in my own experience in Edinburgh last July. One of the practical examiners having been suddenly called away, I was asked to officiate for a day in his stead (I am not onthe so-called "practical" examination). The exhibition made by the majority of the students in their examination of horses was not only painful—it was shocking. One student examined a horse having a most conspicuous cataract, visible a yard or two off—in fact, the whole lens was opaque; he did not detect this; indeed, he forgot to inspect the eyes, and when asked to examine them he took the horse into a cattle-shed, pushed its head into the darkest corner, and putting his hat between it and the wall, imagined he was scrutinising the eye on that side. It is needless to say he did not discover the cataract. The next student likewise failed to detect the cataract, and when at last it was pointed out to him, he said it was opacity of the cornea. Other students could not say on which limb a horse was lame; could not describe how to perform simple surgical operations; and their knowledge of regional anatomy and exterior of the horse was often of the most limited kind, or *nil*. I leave Professor Macadam to discover the school these students came from, but if he had seen or known of such an exhibition as I was compelled to witness, I fancy he would not have committed himself to the sentiments he favoured his students with on second-hand authority. The other examiners informed me that what I had seen was by no means rare. And as proof that the examinations, so far from being severe or unfair, are much too easy, I may refer to the excessively heavy proportion of rejections that takes place among the candidates for admission to the Army (more than fifty per cent.)—these candidates holding the diploma of the Royal College, and generally failing through want of knowledge of simple practical details.

With regard to the number of examiners being limited, this was done from motives of economy; and with respect to the examination fees, no one who knows what the work and responsibility are will think they are too high. On one occasion, an examiner travelled from London to Edinburgh and back in mid-winter, to attend one day's examination—three days, with hotel expenses, for three guineas.

But I need not dwell further on this subject. The Royal College of Veterinary Surgeons is the veterinary profession; and this does not exist for the schools, but the schools for it. It is bound by every means in its power, and by the sternest obligations, to not only do its duty to itself, but also to the public, by improving and testing veterinary education. Its being depends upon this; and if in the past it has been remiss in allowing men to enter its ranks who have not met public requirements satisfactorily, and has thus been the means of allowing unqualified men to obtain a powerful footing in the country, it is high time all this was changed, since greater responsibilities have recently devolved upon it. That those who now attack the College and the examiners are not the students' friends, as they pretend to be, is shown by a motion now before the Royal College to turn adrift those students who have failed in their practical examination, to find their education where and how they may. This is cruel, unjust, and impolitic, and I earnestly hope the Council will reject it. Every means is being adopted to render admission into the profession more easy, allowing those to pass in by instalments who cannot enter in the ordinary way. The profession can never rise, but must go down, if these schemes succeed.

It will be observed that in both introductory lectures, the profession is again threatened with a Charter for Scotland if it will not mend its ways and grant its diploma to those students whom the examiners pronounce to be incompetent to practise—that is really what it amounts to. This threat—which was really an impertinence on the part of the lecturer in Edinburgh, seeing that he does not belong to the profession, and knows nothing of its requirements or its examinations, except from very questionable hearsay—this threat has often been made, and I trust that the profession will not be alarmed by it. When the application for the Charter is made, the Royal College has only to explain to the Government why it is sought (giving the ample evidence it possesses in support), and we may be sure the request will not be complied with. No Government dare grant a Charter which would prove so damaging to the public interests; indeed, I very much question whether the three Scotch Corporations which recently opposed the Royal College, would venture to prostitute their influence in the matter if they knew the truth. It is for the Royal College and its examiners to stand firm, and do their duty fairly and honestly to the public, and we need have no fear of a Scotch Charter ever being granted. The interests of the public are at stake, and these are not to be mentioned in the same breath with the pecuniary interests of the Scotch schools. At any rate, if the Royal College is to fall by means of these schools and the misled Corporations they bring to their aid, it is better that it should do so honestly endeavouring to perform its functions, than to exist merely for the purpose of pitch-forking uneducated men upon the public as M.R.C.V.S. But it must be remembered that to obtain this Charter, the House of Commons must be consulted and give its sanction, and this constitutes the safety of the Royal College. Times have changed the position.

With regard to Scotland being represented on the examining board, that is a matter for the Council to decide. The Scotch schools are represented on the Council by each of their Principals, and the Council-room is the place where they should lay their complaints and suggestions for discussion—not the class rooms, where their one-sided statements can do nothing but harm. So desirous have I been that Scotland and Ireland should be represented on

the examining board, that for more than a year I have spoken of it, and last July I asked Professor McCall to bring forward the motion which he has recently done, to increase the number by four for the final examination. It was my intention, had I then been present, at the last Council meeting, to have nominated two members in Scotland and two in Ireland. As it is, I observe that Scotland only gets one, and Ireland none; so that these Principals display less zeal for Scotland and Ireland in the Council-room than they do in their class-rooms. GEORGE FLEMING.

December 15th.

THE STUDENT'S CAUSE.

DEAR SIR,—With your kind permission for a few lines' space in the next number of THE VETERINARY JOURNAL, I should like to enter on the new year with a greeting of good wishes to our profession, and to point out some inconsistencies in affairs which, unchallenged, can have no other than most damaging influence. Especially is my greeting directed in the welfare of present and future students aspiring to join our ranks, and to become *properly* qualified veterinary surgeons; and, therefore, the food for reflection now offered, together with advice for its digestion, will be confined to the burning questions of education, training, and examination.

The Council, being responsible for the direction of these matters, may first claim attention. That its purpose, in the way of education, has been paved with good intentions must be recognised by all who have followed its proceedings for some time past; but it has been made to appear infirm of purpose, and to be needlessly wasting time in making and unmaking rules for its action, because obstructionists have now been ready to oppose all measures tending to advance the educational standard, and to place our students on a footing with all surrounding progress; and thus have we made our profession the very laggard it is. Is not the Council chargeable with inconsistency, even at the very outset of the student's career, with respect to the educational examination? For who can read without a blush the limit of knowledge required, and deemed sufficient, for a young gentleman proposing to grapple with an art of which we write *post medicinam secunda est.*

It is unfair to a youth of defective education thus to accept him, only to be doomed later on to the disappointment of a false position; and fairer would it be to parents that opportunity were given to choose for such some more fitting sphere of usefulness.

The minds of students, as I consider, have been sadly abused of late; and one has but to read the recent opening addresses at some of the colleges as reported in your JOURNAL, as a further confirmation.

The lamentable incompetence of so large a number of the students is sought to be saddled on the wrong horse.

The Council is condemned, as it always has been, when its rightly intended efforts have been in the direction of rendering the education and qualifying of candidates more than a pretence and a sham; and our present examiners have done good and laudable service to the profession and to the public, in respecting the diploma which represents the holder of it as being "fully qualified to practise the art and science of veterinary medicine and surgery."

The examiners must indeed have been *too severe* when again fifty per cent. of those who have been allowed to pass have been rejected at the army veterinary examinations; and let us hope, for our own credit, the profession to a man will stand by them and support them in so well doing their duty. The examiners must indeed have been perplexed in the extreme, for the record of the late pass examinations show a significant preponderance of the lowest award to save rejection.

Lack of education has always been the great drag-chain on the veterinary profession, and as advance in this particular has ever clashed with the interests of the schools, opposition has been but too successful.

It must not be forgotten that the colleges are not, in a sense, public institutions, and they are not under Government or other supervision, but are, for the most part, proprietary ventures, and the interest, therefore, must tend greatly in one direction.

The gentlemen engaged in them in the business of teaching do, beyond question, to the utmost in their power, strive to educate their students to the full extent of limited opportunities, and they have our sympathy in their self-imposed task.

It is but human nature, and in fair trading, to desire quickly to turn one's capital, and whether the profit be derivable from students, or horses, or fabrics, or any other thing, there must be the same dominant spirit to renew the stock. No wonder, then, that the interest of the profession and the interest of the public, and the interest of the schools, are not necessarily identical.

The rejections have brought to light two admissions—the one in the complaint of the students that they are insufficiently taught in practice, and have not the opportunities afforded them in the schools for acquiring practical knowledge; the other admission is by the schools themselves, that there is not the opportunity in time or material to afford the pupils the requisite degree of practical instruction.

The Council has very rightly instituted a practical examination, as well as an oral examination, and has as wisely ordered that these must be passed *together* to qualify for the diploma; but the former examination being the one in which candidates are found so unprepared, a way out of the difficulty is about to be urged on the Council, which, if acted on, would undoubtedly relieve the schools of a large share of their responsibility and liability, but which would be disastrously damaging to the interests of the students.

The proposal coming from the schools is to separate the practical examination from the final oral examination; to transpose their present order, and to allow the candidate to be *first* examined in the "oral." If he pass this, it is to be considered as done with, and if he afterwards fail in the "practical," the student is to be released from any further attendance at his college, and is to obtain, where he can and how he can, instruction in practical matters under the tuition of a practitioner. In other words, at the end of his college life he is to make terms *as a pupil*, if possible, with a veterinary surgeon, to qualify, for further trial for the diploma, and failing in this arrangement what alternative is there but to find himself on beam-end, foundered, with no other course but to relinquish his aspiration and further connection with the profession. I fear it would cast shoals of young men on their own resources; for many a practitioner who would accept a promising youth of seventeen as an apprentice, and try to make a man of him, may hesitate to undertake the responsibility and trouble with the older pupil, whose credentials will scarcely avail for the few vacancies for a "practical young man as an assistant," and thinks the student's interests will be safer in our Council's hands than his.

The hardship on parents in the rejection of unprepared students has been pathetically dwelt on, and when "hope deferred maketh the heart sick," who can withhold sincere sympathy? I will, therefore, ask you to allow me to close with a greeting also to parents, for whose guidance I will venture to point out that the veterinary profession is *not by any means an inexpensive one* to bring a lad up to, either in the requisite training for it, or in its after practice, and it requires to start with the possession of a good education, and a natural taste for animals, their habits and surroundings. If a parent

in the first instance will but place his young son on probation for a few months with a good veterinary surgeon, and act on his advice as to whether or no there is the *right material* to send to college, there will be less disappointment in the future. "LIBRA."

PRACTICAL TRAINING.

SIR,—I have no objection to Mr. Greaves, or any other gentleman, for his own special delectation, or the amusement of his friends, erecting a ghoul, in the form of imaginary defective practical instruction of our veterinary students, and dancing around his phantom in true Ojibeway fashion. I think, however, that those who are made use of for the manufacture of this ogre have a right to demand that any statements which are made shall be strictly true, both in a general way and in minute particulars.

Before Mr. Greaves made the statements contained in his article in this month's Journal, he ought, amongst other matters, to have ascertained whether it is strictly true that the teachers of veterinary medicine regard with such disfavour as he states, the employment in professional work of young men intending to enter College and the profession.

Camden Town, *December 13th.* WM. ROBERTSON.

DEAR SIR,—Tired as we may be of the word "Practical," it is for us to face facts as they stand.

The men turned out by our colleges at the *present* day are *undoubtedly* inferior to those of former times; the reason being that students then never thought of going to St. Pancras School unless they possessed some practical knowledge; *now*, they think that the mere acquiring of the College information is enough to make them veterinary surgeons.

I maintain, and that strongly, that the *all-important* practical knowledge *cannot* be obtained at our schools, but must be had at the establishment of a respectable veterinary practitioner, and in the country, *i.e.*, rural districts, if possible, as matters are there practised, which cannot be taught in town—to wit, castration, parturition, agricultural details, etc., etc., etc.

We have seen men possessed of the highest theoretical qualifications, make themselves completely ridiculous in the farmyard, horse-dealers' stables, repositories, etc., merely through being unacquainted with the most simple and elementary veterinary matters, details which they should have learnt in boyhood.

Practical knowledge must *come first, during boyhood;* and *then* theoretical affairs; theory can be imparted in after years, but *practice cannot.*

Some say that it is not necessary that a V.S. should be well educated; in fact, they go further, and state that education unfits them for their work. Now I boldly maintain that such is not the case; for instance, our military and naval officers—many of whom I know well—are gentlemen in every sense of the word, and yet thorough *horsemen*, and capable of any amount of manual work, if needs be.

Professor Robertson does his very utmost to impart practical knowledge at the London school; but he—as a practical man—could, I dare say, tell us that a student can only acquire that information and tact by individually coming in contact with the patient and client, and himself performing the ordinary operations, etc., which go to make up the daily routine of a town and country V.S.

Those men who by nature are not fitted for the veterinary world, will much easier discover this matter during an apprenticeship than while within the walls of the R.V.C.

As "A Reformer" says, "No amount of lectures will make a successful

operator, unless the pupil is allowed to do the work *with his own hands*, under the supervision of experienced teachers."

Personally, I have no interests at stake, simply the welfare of my chosen profession; and I firmly state that I am positive we cannot have "thoroughly qualified veterinary surgeons" unless we make it compulsory that a man shall present his indentures of apprenticeship *prior* to becoming a student at our schools; and, further, that the final and practical examination shall be more searching and thorough.

Some may remark that when the apprenticeship matter is carried—as I am thoroughly convinced it will be—that the expense will be great.

Then it would be well to alter the present existing College regulations, lessening the length of time to be spent at Camden Town, etc.—anything rather than turn men out into the world with their diplomas as being "duly qualified, etc.," who are, in reality, unacquainted with the rudiments of their profession.

"BLINK BONNY."

PRACTICAL KNOWLEDGE.

DEAR SIR,—The picture you have drawn in the November "editorial," of the student who lacks practical knowledge, is by no means overdrawn. There is no doubt that while we hope to impart practical details *at our schools*, the fact will remain, that the possession of a diploma is not a guarantee of a man's fitness to practise his profession. There are a large number of veterinary students, now-a-days, who *never* will make successful veterinary surgeons, simply because they are not adapted for the work; it would be much better for themselves, the public, and the profession, if they were employed in some more suitable calling, such as commercial engagements, civil service appointments, etc., etc. A celebrated steeple-chase man once said, "A man must be born a veterinary surgeon; it is impossible to make one." What can be more ridiculous than the following:—"A farmer desired a lately-fledged V.S. to castrate a colt; the 'duly qualified' made such strange efforts to catch the animal prior to castration, that the farmmen, etc., openly laughed at him, and the M.R.C.V.S. being too much afraid of the colt to effect a 'throw,' the undertaking was given up."—Faithfully yours,

"PRACTICAL WORK."

THE VALUE OF SUBJECTS TAUGHT TO THE VETERINARY STUDENT.

SIR,—While asking the favour of space in your next issue, I must disclaim any desire to enter on the public discussion of matters which, though demanding the consideration of all interested in the progress of the profession, appear to be the special province of those of more extended acquaintance with its constitution, and proffer as my apology the belief that some of the statements of the article in question are erroneous, or at least that its general tenor is likely to mislead.

From the following remarks, it will not be inferred that I wish especially to impute to Mr. Thomas Greaves other than high-souled motives for the elevation of professional status, or to question his right to dilate in large type in our representative publications on the intellectual, educational, or moral condition of the veterinary student; but in order that substantial benefit may accrue to the discussion of any topic, I think it is essential that our premises be correct, our assertions facts, and implications verities. It must also be admitted that when abstract subjects as intellect, education, or morality are being examined, the maximum of beneficial influence will be brought to bear by those who have made greatest advance in either or all. For we must allow that practice is a manifestation of the truth of a theory, whether this

be in medicine or ethics. There, however, seems in certain quarters some little doubt about what practice really is; but we will leave the doubtful, and proceed to what cannot be disputed.

There will be no division of opinion about the assertion, that practice is the only useful outcome of an exposition of abstract principles. The manner in which the student of veterinary medicine may gain the largest amount of these principles, and the faculty of applying them, appears to be a point of divergence amongst us, to which I will not now farther refer; but to the fact that the natural inference from Mr. Greaves' paper is that the schools are entirely incapable of imparting this special pitch of knowledge, for which apprenticeship to a veterinary surgeon prior to the student's entry on his scientific education is all-essential. That pupilage in some cases tends towards this end, I am not open to deny, but that the advantage gained is equivalent is, so far, debatable ground.

The writer, at the threshold of his remarks, assumes what I believe to be false premises, when he states "that the unanimous reply of several professors whom he had consulted on the subject has been that he (the pupil) is always a conceited man." "The knowledge that has been so carefully, so diligently, so sacredly implanted in his mind, is worse, much worse than useless." "That it always makes him the worst of students." I do not think such expressions are compatible with reason, and I am sure not with the sentiments of teachers who have spoken with me on the subject, who, Mr. Greaves might remember, are too careful to commit themselves by uttering such sweeping, senseless assertions.

Then the writer states that "The knowledge gained during a period of pupilage is quite sufficient to render the study of *pathology* of secondary importance, since he has seen practice before entering college, and he could bestow the whole of his time and his mind to the study of other subjects, and thus learn them more thoroughly, while another student (who had served no apprenticeship) although equally diligent, has had to devote much of his time and attention to obtaining some idea of pathology as taught at the college, which, by-the-bye, is a very different thing to that adopted in general practice, in which hereafter he has to get his living." From this it is evident that the author recognizes more than one pathology—at least two, the one useful, the other useless. I am quite sure, notwithstanding Mr. Greaves' vast experience and varied peregrinations, that it will be a hopeless task for him to try to convince the teaching staff, or the conscientious body of the profession, that this should be the basis for work of honest men. However, the terms science or scientific (in plain English, ascertained truth) may be subjected to disparagement, it will not be admitted, in spite of the practical exponent, that practice should be based on other than scientific principles, or that the practical man, or the so-called theorist earning his livelihood by practising on any other basis, is but an impostor, or that he will escape his deserts, unless he possess a considerable amount of "tact," "cant," "trickery," or by what name the cloak over his ignorance may be called.

While individuals are variously constituted, there will be diversity of opinion about details of practice; but when a man can give for adopting his method a reason which is in accordance with scientific principles, who can dispute his right? In the practice of an art which is not exact, principles can be our only guide.

Mr. Greaves must know that men may differ as to whether a horse is lame or not, or even as to the cause of lameness; and in treatment of cases details may be as various as are means at our disposal. He will certainly know that one practitioner may deem some such treatment as blistering, firing, or plantar neurotomy, correct in cases of exostoses around the pastern or coronet, while the empiric, as well as the eminent qualified practitioner, upholds that

of removing the insensitive and exposing the sensitive sole by the somewhat severe operation of "drawing the sole," which I believe has been mentioned as fit for the consideration of the R.S.P.C.A.

But to return to the main object of this communication, from which I find it is hard not to wander. I beg to offer to the notice of Mr. Greaves the following facts, which may afford him some more substantial basis for the further ventilation of his hobby, if that be deemed necessary. To show that the country will soon be supplied with veterinary surgeons of undoubted *practical* ability, and that there will possibly, in accordance with the law of the "survival of the fittest," be no necessity for inserting the pupilage clause into our charter, nor of securing such protracted examinations as would appear from his remarks to be essential, I beg to inform him that of the last 150 students entering this college, ninety had previously been with a veterinary surgeon, while others had gone after passing the first or second examination of the R.C.V.S.; that of the last fifty who failed to satisfy the examiners for the diploma, more than four-fifths had been apprenticed to veterinary surgeons.

Then as to the assertion, "In fact (the student) may never have seen a sick or lame horse in his life, only the few cases he may happen to have seen at college." *Happen*, forsooth!

Three academical years is the length of the curriculum of the college, and Mr. Greaves may note the following, which are facts:—

During the past three years—1882, 1883, 1884—there have been within the walls of this college 3,268 horses examined as to soundness; 4,129 horses examined as to lameness or disease manifested in other ways; 2,387 horses in the infirmary as in-patients (this is exclusive of dogs and other animals, of which there have been large numbers); and in addition to the foregoing, over 6,000 animals of various species have been examined at the gratuitous practice of the college (within its walls). One-tenth of this number were subjected to surgical operation; over one half were lame. To the whole practice every student had unrestricted access. No examination for disease or soundness takes place without the students at hand being able to observe the method and to hear the result, some of their number being discriminately or indiscriminately questioned respecting lameness, defect, symmetry, adaptability for work, etc. The student's answers are made before his fellows, than which exercise I know of nothing so likely to put a man on his mettle, to induce him to use his best judgment, to keep a sharp look-out at all times, and to gain for him what can only be gained by practice.

I believe that all examinations are made in full view of the fact that the supreme object of this establishment is the bringing to the notice of students those things which will not only enable them to earn their living easily, but to do so with the greatest amount of benefit to patient and client.

In his infirmary rounds, which occupy more than an hour daily, each teacher is almost invariably accompanied by groups of students, who go round as systematically as they attend lectures where the roll is called; the interchange of questions and answers on points in connection with the several cases, must be of practical value. These are matters liable to be overlooked, and are in addition to the regular clinical teaching which is carried out in divisions of every class, and these meet regularly in the loose box, stall, kennel, or casting shed.

All the medicines for the fore-mentioned twelve thousand horses have been dispensed and administered by students, who have also performed, with their own hands, all the surgical operations (some hundreds yearly) at the gratuitous practice. These include some of the more delicate, and I can assert that it is a rare occurrence for a student to obtain his diploma without having performed plantar neurotomy, while fortunate individuals have done so several times. Even that operation of castration which Mr. Greaves specifies by saying a student may never have seen, I must say the only

reason will be that he has not looked for it; for no student need leave this place without seeing it performed comparatively often, while many have a chance of doing it themselves. Then as to manipulation of the foot, I may say that for some years at least no student has been admitted to his preliminary examination until he has removed and affixed with his own hands four shoes, for which he has himself pointed the nails.

I do not wish to hold this school aloft as the perfect model of practical teaching, but I mention the foregoing in the hope that these matters may be news to Mr. Greaves, and that he will not consider that he has just grounds for referring to the practice at the disposal of the student as "but the few cases he may *happen* to have seen whilst at college;" and if any misconception or misconstruction be corrected, the object of this communication is attained.

That the inculcation of business habits, professional etiquette, and acquaintance with animals in health are matters of the utmost importance to the young veterinary surgeon is allowed by all; that these benefits accrue to the subjects of pupilage is questionable. The fruit of apprenticeship, like other fruits, depends on the soil as well as the seed, cultivation, and climate; all are liable to variation, for which allowance must be made in calculation. The good man, other conditions being favourable, will be benefited by pupilage; he would, in fact, improve in all situations, and if he had not the advantage of apprenticeship would have made some extra compensatory efforts. Whether apprenticeship is economical for the individual and the profession is not to be discussed here. Certain it is, apprenticed or not, it will be impossible for any student, or even qualified practitioner, to have performed every operation, or to have examined every case with which he will have to meet in the "struggle for existence." But to me it is equally certain that he may by diligence carry away from college with him knowledge on which to base the superstructure of his practice, which is all that can be required of a young practitioner.

Mr. Greaves, referring to the duty of the examiner, said, or implies, that "Unless there was some written evidence to show that he has been amongst sick and lame horses, the examiner has no guarantee that such student knows anything whatever of general practice, *except by seeing him do the work himself*." "Yet the examiner is obliged to vouch for them." I hold that written evidence has nothing whatever to do with an examination of actual work. The duty of the examiner of the Royal College of Veterinary Surgeons may be undoubtedly inferred from the words of the diploma to which he subscribes—*i.e.*, "That having examined, and having found him duly qualified to practise, etc., the art and science of veterinary surgery and medicine, he is hereby declared a member," etc. Any examiner who takes written evidence in lieu of a personal examination of a man, runs the risk of issuing a fraud on the public, and of placing the young member in a false position. Within twelve months it would not be possible to see a student do the work himself; while a moderate space of time is all that is necessary for the qualified examiner to discover whether a student or practitioner possesses the requisite amount of knowledge of principles. I do not believe that any of our examiners would do themselves and the public the injustice of signing the diploma, unless they were convinced of this.

In regard to the student and the profession, the duty of the examiner is of paramount importance, and in any alteration in the constitution of the examining board, it is most essential that such should be the deliberate and discreet act of our Council, with whom the possession of all qualifications necessary for examining, and especially a thorough acquaintance with general principles, should outweigh any imaginary claim of popularity or locality.—I am, sir, your obedient servant, JOHN PEMBERTHY.

Royal Veterinary College, London, N.W.,
December 13th, 1884.

"MURMURS."

SIR,—The very acrid eructation emitted from the disordered mental digestive apparatus of your correspondent, C. Cunningham, is a fair sample of the grumbling, discontented disposition of a certain number of members, more especially of some who dwell across the Border. Mr. Cunningham may be a very clever man, perhaps a "luminary," but we have no evidence of it so far as I can ascertain. It certainly requires no ability to find fault—in fact, fault-finding is one of the easiest things in the world, and the ease with which it can be performed is only too often exemplified by those who, like Mr. Cunningham, inveigh against the Royal College of Veterinary Surgeons, its Council, examiners, and everything it does. I do not wish to go over all the ground your correspondent has traversed, but will simply refer to a few of the points he deals with. And, first, with regard to the Fellowship,—probably this degree is a matter of sour grapes to Mr. Cunningham, as it is to some others. At any rate, he has no business to abuse it without better knowledge than he appears to possess regarding it. It was instituted with a good object, and that object has not been departed from. So far as I know, no young fellows who appeared before the Examining Board, got very easily over the bridge; on the contrary, their examination in general and professional knowledge was most satisfactory, much more so, I fancy, than Mr. Cunningham's would be. These young fellows are, I have reason to think, among the most promising the profession can boast of. However this may be, men who manifest their laudable ambition to rise in their profession, and to enhance the value of their professional position by becoming candidates for the Fellowship degree, are more worthy of congratulation than those who sneer and scoff at it, simply because they have not the aspiration, the courage, or the knowledge to attempt it. Let Mr. Cunningham try, and he will undoubtedly discover that the examination is not so easy as he imagines; indeed, he might find that he would be remitted to his studies at Slateford for a time. It may be true that one of the examiners retired; if so, it was probably because he found himself incompetent for the task. I would caution Mr. Cunningham not to place any reliance on the "murmurs" he hears with regard to this and other matters connected with the Royal College. "There is a lying spirit abroad," especially towards the Scottish capital, and its evil effects have been remarked for a long time, resulting as they do, in a tendency to create discord and disunion. In this respect we are too much reminded of the old nursery rhyme concerning one Taffy, of the Principality, who had a weakness for the beef and bones belonging to his neighbours. Motives, personal character, and reputation are all unmercifully assailed, and in an underhand, behind-back manner.

I am unable to discover in what way our colleagues in Scotland are superior to their brothers in England, Wales, or Ireland; according to Mr. Cunningham, they are perfection in the north, elsewhere they are fools and rogues. If we look at the course of events for the last twenty years, we cannot discover this claim to superiority; in fact, in all the recent progress that has been made in raising the profession, they have simply not been "in it." Indeed, it would appear that some of them have rather been opposed to the emancipation of the profession from the fetters which bound it; as witness a certain meeting held in Edinburgh to oppose the Veterinary Surgeons Act, and, more recently, the action taken in opposition to a charter, the object of which was to greatly benefit the profession and the country. For a long time it has been obvious that an Evil Spirit has got among some of our Scottish brethren and has taken possession of them. I would beg of them to cast it out; let it enter swine, as they are the only fit receptacle for it. To

all appearance, the object in Scotland (indeed it has been avowed as the object of the Agricultural Society) is to keep veterinary education down to the level of the Highland shepherd and north-country blacksmith. Surely this should not be. Allowance must be made for the fierce and deteriorating competition between the three Scotch veterinary schools, whose doors refuse admission to no one, literate or illiterate. These schools must fight to live, like the Kilkenny cats, until there is nothing left but their tails, or even less. But surely that is no reason why the Scotch practitioners should hold themselves aloof from all movements which have a tendency to raise our position, nor why they should content themselves, like Mr. Cunningham, by jeering at and deriding the efforts which have been made, and successfully made, by veterinary surgeons elsewhere. The attitude they have assumed is altogether an unworthy one, and if they wish for recognition in the Council and elsewhere they should abandon that attitude. It must be remembered that it was the action maintained in Scotland for so many years, that prevented union and retarded political emancipation up to the last moment, when it was achieved without Scotch assistance.

It is rather amusing to observe the way in which Mr. Cunningham speaks of the National Veterinary Medical Association. He asks it to visit Edinburgh. Why should it go to Edinburgh? The number of veterinary surgeons in Scotland who belong to it could, perhaps, be counted on the fingers of one hand, and notwithstanding invitations to attend its meetings, they have studiously ignored it, and declined to have anything to do with it. It would be imposing too much on good nature to ask the members of the Association to meet where they are evidently not wanted. When Scotch members show a disposition to assist the Association, then it will be time to speak of visiting Scotland.

With regard to national representation of the Council, I must confess I have no objection to it, though I think it would result in much amusement, and a good deal of comedy. If such a change should take place, I trust Scotland would be better represented than she has yet been. Let her send Scotchmen, not Welshmen and Englishmen, in order that we may see how far Mr. Cunningham's boasting is well-founded.

There is much more I would like to say with regard to Mr. Cunningham's letter, every paragraph of which could easily be traversed; but I fear I have already intruded too much on your valuable space; so I will say no more at present.

F.R.C.V.S.

PROFESSIONAL WANDERINGS.

SIR,—Pressure of business has prevented earlier attention to this subject. *Apropos* of the expense of qualifying by a curriculum, and not by "Act of Parliament," it is hard lines that by what we consider egregious blundering we are placed on a par with persons without professional knowledge, many most illiterate and of varied occupations, from that of a country pedagogue to the hewer in a pit, or the rat and mole catcher. How will the kid-gloved, be-ringed members of the profession, some of them most earnest advocates of the measure, relish being placed in the same category, as is the case, before legal tribunals? Many of those registered *had no claim* had their applications been thoroughly investigated, but where objections were raised there were so many difficulties in the way of substantiating the proof that would have occupied considerable time and expense, and many thought that the animus against proof, and for admission, would render it labour in vain, that even in clear cases they threw the matter up in disgust. It may be that we are obtuse; but we do not quite understand where the money went. Will these recruits raise the status of the profession? The most powerful argument in its favour is that it will be of great *future* benefit. This is following out the Jesuit maxim, "Do evil that good may follow." Our Council representatives may

be said to ape the ways of municipalities, careful of their constituents' interests and favourable to progress, until *elected* afterwards. Why do not some of them answer the complaints that have been made respecting the silence of the authorities on the subject of offences under the Act, or stimulate them to some kind of action, at least, to the courtesy of a reply to these grievances?

Supposing our man to have obtained a diploma, and having had no previous training, he seeks a situation as an assistant, almost always giving his valuable (?) services for the opportunity of "seeing practice." This statement is borne out by the advertisement columns of our professional journals. As a matter of economy this often tempts practitioners, but it is a cheese-paring policy that often detracts, and properly, from a master's credit. By far the great number of these aids are not worth their salt: they are mere stop-gaps. To entrust them with the treatment of valuable animals, except most trivial cases, is not only to endanger the lives of these, but is a fraud—obtaining money under false pretences, *i.e.*, for skill rendered; for how can this be so when no skill is possessed?

The preceding observations apply to new graduates, and not to pupils. The display of ignorance is not confined to practical matters, but is on subjects which, as recent students, they ought to be especially accurate, as compared with the practitioner, who is in the hurly-burly of active duty.

One of these gentlemen recently gave such a technical definition of Splint in a law case as made him the laughing-stock of the court.

Some will say these must have "a learning"; conceded, but it is unfair that the country should pay for their education, as it does by losses from inefficient or unskilled services. If owners of animals were alive to the actual merits of the so-called assistants of some large and important establishments, their returns would be very considerably reduced. A good many of these young gentlemen carry all before them by their impudence, aided by the adventitious aid of a stylish appearance.

It takes more than a month or two to make such as these into even ordinary practitioners. Their egotism and conceit is a stumbling-block to the acquirement of knowledge: if offered advice on subjects they are most ignorant upon, they meet it with foolish argument, based on speculative hypothesis, or even affirm that it is to them an old story, but they possess knowledge far in advance of it. As a rule, on most points they are most blatant, especially on their own qualifications, forgetting—

> "That on their own merits
> Modest men are dumb."

Town practice is generally selected by those who have had no pupilage. Many country practices pass to some junior of the family, or to a pupil, and there are many instances of these now worked by a third generation. As far as both physical and mental labour are concerned, a town business is by far the easiest; it requires less ability, as there is not that diversity of disease, and the pay and status are higher. Why the last should be the case has always been a mystery to us.

To be successful in a large town, certain things are necessary. First, and most important, sufficient capital to make, and maintain for some time, an important appearance. Men now-a-days are seldom judged by the bard's standard—"Gold is but the guinea's stamp"—but by the quality and style of their surroundings. It is absurd to suppose that brains or ability make success sure; rather trade on borrowed capital, and by ostentation and tact push your way. To be sure it is a false way, but it makes you "hail fellow" with those who otherwise would not notice you, and who, in the ardour of a recent friendship, considerably further your interests. Worldly experience proves how few there are that weigh the quotation—

"By outward show let's not be cheated;
An ass should like an ass be treated."

If our social position is apparently good, the jealousy of our *confrères* will be *sub rosa;* but be once down and you are everything that is bad, and although fear of consequences makes some of them somewhat careful, they convey to the full their meaning by inuendo and covert sneer. Then your skill or knowledge recks but little, and the waiting is long and weary. But—

"Honour and shame from no condition rise;
Act well your part, there all the honour lies."

There are several things in which we might expect town veterinarians to be specialists; these are such affections of horses as Lamenesses, Catarrh, Influenza, Catarrhal and other Fevers, examinations for purchase, etc. We know of none so exceptionally skilled as to be above many of their country brethren, although, by an easy assumption, they often over-rule the latter, even when their judgment is at fault. Specialists seldom exist, except where leisure is obtainable. Many an ugly blunder our town brethren from large establishments make that is glossed over, that in one of lesser standing would be almost a crime. Some town practitioners owe much of their importance to their livery, bait, or sale yards, and much of their returns to commissions on the sale of horses. We look on these, especially the last, as *infra dig.*, and underhand, if not dishonest. So much do some give up their time to this, that they cease to care about the profession, except for the money it brings to their pocket. We hold that for a man to be a clever practitioner he must thoroughly enjoy it.

An old acquaintance of ours, who has been in a pecuniary sense more than ordinarily successful, recently said, "I never cared for the profession; I like the examination and purchase of horses." Knowing his failing we quite believed it. *It paid him better.* This gentleman claims to be a specialist in examination, and he is, if the most glaring blunders "in wind, limb, and eyesight," constitute it.

In those cases that we might expect special knowledge, the town veterinary surgeon is lamentably deficient.

Recently, in a disputed case, an animal was diagnosed "lame in the foot." Thorough examination revealed nothing; the horse had fallen hind-end first into a deep hole, and had lifted his heavy carcase out by his fore-legs by dint of hard struggling. There was every indication of sprained shoulder; he was blistered, and recovered. Cases of open joint have been treated as common wounds, with two pledgets and carbolic oil dressings—in some instances for weeks—until disease of the articulation has occurred, and during the period the owner has lived in a fool's paradise, getting favourable bulletins without the least warning of the gravity of the case, until it became quite patent even to his inexperienced vision. Do such things occur through ignorance?

We have very recently had an illustration of exceptionally peculiar treatment of a simple wound. It was the result of an injury—its direction being from above downwards—in muscular tissue. Although a dependent exit could, without the least risk, have been made for the discharge, *it was treated from above.* The consequence was an attack of Pyæmia, formation of vomicæ, penetrations of the discharge from the wound into the body, and death. A week or ten days before death the report was, "will be ready for work in a week or so." Yet we boast ourselves on the advance of knowledge in the profession. We had a case of Quittor brought to us that had been under daily treatment for over six weeks; but as we are already in "hot water" we declined to undertake it. But a friend of the owner's, a handy man, by our advice, had him thoroughly fit for work in three weeks.

There are in many large establishments *stock* preparations known as "*The Lotion*," "*The Liniment*," "*The Draught*," forcibly reminding one of the old

school of medicos, who, for paupers and club-patients, as a matter of economy both of money and labour, put all the "odds and ends" of physic in a common receptacle, adding some salts, senna, and decoction of aloes, the whole constituting "Black Strap," and being a panacea, for the classes mentioned, for all the ills the flesh is heir to.

Within the last two or three years a novel name has been introduced amongst us, to wit—Epizootic Cellulitis (*vulgo*, Pink-eye). It is a new name for an old and easily-recognised disease, and had the gentleman who originated it been better versed either in veterinary literature or pathological knowledge, he would have hesitated before he had exposed himself to ridicule. Pink Eye! Why not call it "Pink Nose," or "Pink Mouth," as these parts are often as highly-coloured, and very frequently more so, than the conjunctiva? As to its novelty, it existed before the birth of the gentleman who coined this name, and its more recent characteristics were common enough years ago, and were spoken of by Mr. Lord (an Army V.S.) as *Gastritis Mucosa*. At that time it prevailed in all large towns, especially in the metropolis, and as it was said to have been introduced from France, it was called the French Distemper.

It is neither more nor less than Catarrh, or Catarrhal Fever—a complication of Influenza.—Yours truly,

A PERIPATETIC.

(To be continued).

"BURSATTI."

SIR,—As I find that recently my name has been mentioned in an article published in your Journal on Bursatti, I shall feel much obliged if you will correct several errors of expression and omission in the statement referred to (p. 161, September Number, 1884). I did not "distribute specimens" of the fungus cultivated by me from Bursatti *Kunkur*, but I one day, when the culture was in full swing, happened to be going up to London from Woolwich to see the P.V.S. at the War Office. Just as I was starting it struck me that he might like to see a specimen of the fungus, so I took some out of the fluid, put it roughly on a slide, and protected it with a cover-glass, wrapped it in the first piece of paper which came to hand, and carried it up to town in my waistcoat pocket. On my arrival at the War Office I found on examination that the slight frictions to which this specimen had been subjected in my pocket during this rough transit had practically disintegrated the fungus, of which I could only show Mr. Fleming very slight and scarcely distinguishable traces. I fear this luckless specimen is the one "obtained through the kindness of Mr. Fleming, which I at once made over to Mr. Garside, then at the Brown Institution, London, and requested the favour of his opinion on what were labelled as indubitable fungi." I should have been very much surprised had Dr. Roy and Messrs. Garside found anything but *tissue debris* on this slide when they examined it. Who can tell what amount of exposure to light and other influences deleterious to fungi it had been subjected to before they had an opportunity of examining it and since? I examined it prior to starting for London and labelled it "indubitable fungi." These circumstances have to be given with what may seem undue prolixity, because the examination of this specimen with negative results has been adduced as a severe blow to the view of Bursatti being parasitic in its nature. I may now add, since my crude observation on this occasion has been dragged before the public, although I did not consider it exact enough to be considered worthy of record, that although I fully believe that in this case I saw the cultivated Bursatti fungus, my methods of culture were so little elaborated (I believe I was unsettled just prior to my departure for India) that I deemed the observation not exact enough for record, and simply as of value in encouraging the culture method of investigation which has since given such excellent results in the hands of V.S. Frederick Smith. The trivial matter

which I have now been compelled to notice is quite distinct from the observations and facts given in Volume xiii. of the Journal, October, 1881: in which paper I have studiously endeavoured to separate facts observed from my theoretical deductions from those facts.

Bangalore, *28th October*, 1884. J. H. STEEL, M.R.C.V.S.

VETERINARY JURISPRUDENCE.

SIR,—I should like to ascertain, through the medium of your valuable journal—(1) whether a registered practitioner is justified in calling himself a veterinary surgeon in the witness-box in a court of law, and whether his evidence in a professional respect is to be taken in preference to the evidence of a member of the Royal College of Veterinary Surgeons? Also (2) whether it is possible to preserve in an open vessel without the aid of spirits of wine or other antiseptic, for twelve weeks in the heat of summer, the lungs and liver of an animal in such a state as a M.R.C.V.S. would be warranted in swearing that they were the subject of a particular disease of six months' standing before the death of the animal, and that this disease was the cause of death? And lastly, (3) whether it would be possible to preserve them in a fit state in an open vessel, even with the aid of the best preservative known?

"JUSTITIA."

[1. The law does not prevent a registered (existing) practitioner calling himself a veterinary surgeon. Whether his evidence in a court of law will be accepted in preference to that of a M.R.C.V.S., will depend upon the nature of the evidence and the judge and jury. 2. No. 3. No.—ED. *V. J.*]

NOTE.

WE are requested to publish the following corrections to be noted in Gresswell's recently published "Theory and Practice of Equine Medicine":—Page 46, line 6, for "pyrogenica," read "pyogenica"; page 97, line 11, for "hænarhagica," read "hæmorrhagica"; page 172, line 15, for "of," read "or"; page 186, line 4, for "serous," read "venous"; page 330, line 20, for "tonic," read "toxic."

Communications, Books, Journals, etc., Received.

COMMUNICATIONS have been received from G. A. Banham, Cambridge; W. Brydon, Boston, U.S.A.; R. Dyer, Limerick; T. Walley, Edinburgh; J. H. Steel, A.V.D., Bangalore; T. Chalwin, Adelaide; "F.R.C.V.S."; M. E. Stevenson, Goole; W. Robertson, London; C. W. Gregory, Bristol; R. J. Dawson, Wickham Market; J. Donald, Wigton; W. Leather, Liverpool; W. Wilson, Toronto, Canada; A. Shawcross, Louth; J. Roalfe Cox, London; G. Fleming, London; "Libra;" "Justitia."

JOURNALS, ETC.: *Der Thierarzt: Wochenschrift; Lancet; Live Stock Journal; Mark Lane Express; Echo Vétérinaire; Annales de Médecine Vétérinaire; Revue Vétérinaire; Journal of Comparative Medicine and Surgery; Recueil de Médecine Vétérinaire; Repertorium für Thierheilkunde; Archives Vétérinaire; Archiv für Wissenschaftliche; Œsterreichische Vierteljahresschrift für Wissenschaftliche Veterinärkunde; American Veterinary Review; Der Hufschmied; Chicago Live Stock Journal; Clinica Veterinaria; Animal World; Edinburgh Medical Journal; Tidskrift für Veterinar-Medicin; Canadian Dairyman and Farmer; Animalia; Kansas Live Stock Indicator.*

BOOKS AND PAMPHLETS: *George Pauntscheff*, Untersuchungen über den Magen der Wiederkäuer; *Fr. Rom. Tobolczwski*, Kurze Uebersicht über Bau, Zweck und Krankheiten der Haare; *J. A. Nunn*, Indian Civil Veterinary Reports; *C. W. Gregory, M.R.C.V.S.*, The Principles and Practice of Shoeing.

NEWSPAPERS: *South Australian Advertiser; North British Agriculturalist; Bristol Times and Mirror; Yorkshire Herald.*